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Original Communications.

*NEW ANTISEPTIC METHODS OF TREATING PULMONARY DISEASES.**

By Professor Dujardin-Beaumetz, Paris, France.

GENTLEMEN:—In a series of lectures on "New Medications," which I had the honor to deliver before you a couple of years ago, I endeavored to show you that although the method of antisepsis, in its application to pulmonary diseases, was still in its infancy, yet there was every reason to expect from such antiseptic medication, when founded on the rational observation of the causes of diseases, brilliant results in the future. It must, indeed, be confessed that we have not made as rapid progress in this direction as we could have wished; but this is not at all surprising, considering the difficulties which we have at every step to encounter in adapting the principles of antisepsis to the treatment of pulmonary affections.

In fact, to state the matter plainly, the rational application of antiseptic methods implies several conditions: first, the perfect knowledge of the microbe itself, and the conditions in which it develops, reproduces itself, and dies. We must know, too, its degree of resistance, and especially its degree of vitality,

* A lecture delivered in Cochin Hospital.

as contrasted with that of the organ where it vegetates; and this last condition is practically the most important of all. In fact, the lung is an organ pre-eminently essential to life; and if, in attempting to effect destruction of the germ of the disease you injure the organ which is its habitat, you will have left the subject in a worse state than before.

Antiseptic inhalations—a subject to which we shall shortly return—have not given all the results that they promised. For this there are several reasons,—first, a number of these antiseptics are irritant substances, whose use cannot be prolonged with impunity, and which soon determine in the larynx, trachea, bronchi, and even in the lungs, symptoms of irritation and inflammation which cannot but be prejudicial to the patient. Moreover, the lungs are an effective channel for absorption into the blood, and, as many of the best antiseptics are toxic, and the patient in carrying out the treatment would necessarily inhale considerable quantities, there would be more or less danger of systemic poisoning. Lastly, there is another difficulty in the way, owing to the fact that recent experiments have proved that in inhalation atomized saline or other substances penetrate with difficulty to the last bronchial ramifications, and that the greater part of these sprays are retained in the upper air-passages. The physiological experiments on animals undertaken by Professor Jacobelli, of Naples, with his ingenious atmiometer, before the Commission appointed by the Academy, have shown us how questionable a matter is this penetration of vaporized solutions to the ultimate bronchi; and my colleagues of this Commission—Marey and Brouardel—have shared my doubts on the subject.*

You are well aware, gentlemen, that the pulmonary diseases of microbic origin are not numerous, and that it is to the treatment of tuberculosis especially that clinical investigators are now directing their energies. The discovery of the bacillus tuberculosis has opened up a new line of experimentation, and, I may add, a rational and scientific one, for those who are seeking for more radical therapeutic methods in this formidable disease, which makes such ravages among our civic populations, and especially among the poorer classes, who, by reason of want of hygiene, bad alimentation, alcoholic excesses, offer an excellent culture-field to the parasite.

Unfortunately, the tubercle-bacillus is a micro-organism characterized by great resistance and difficult to overcome, considering its vitality and its ability to tolerate very energetic treatment. For this reason, and for those which I have just mentioned, it has been thought prudent to cease attacking it from the front, and to seek other and safer methods of getting at the enemy. It is these new methods which I am going to make the subject of my present lecture,—methods which, I believe, indicate a real advance in the antiseptic treatment of pulmonary diseases.

All these antiseptic measures, without exception, attempt to realize this fundamental intent: to bring in immediate contact with the pulmonary mucosa and the air-cells the antiseptic substances. Of the three procedures which have been proposed to attain this end, the first is that of parenchymatous injections made directly into the pulmonary tissue. This method, advocated by Lépine, Truc, and Gouguenheim, has been abandoned for reasons which I have before given you. By another process, we seek to avail ourselves of a property possessed by the pulmonary textures, of elimination by exhalation through the air-cells of substances introduced into the blood. The third method is, in principle, the older one, of direct inhalation by the buccal passage of antiseptic medicines. It remains for me to speak of these two procedures, that of exhalation and that of inhalation. I will begin with the former.

Instead of directly introducing the medicinal substance into the lungs by the air of respiration, we first cause it to enter the circulation by some process; then, in being eliminated at the surface of the lungs, it comes in contact with the diseased parts, and thus enters into conflict with the morbid germ. As absorption by the lungs is left out of the case, there remains only absorption by the subcutaneous tissues, or by the digestive tube; in other words, the medicament must be introduced hypodermically, or by the stomach or rectum. In phthisical patients the stomach is often not in a good condition for the reception and absorption of medicaments; and by reason of the facility with which vomiting may be induced, or the stomach otherwise irritated, and of the necessity of keeping this organ in a sound con-

* "On the Atmiometer of Professor Jacobelli." Report presented in the name of a Commission composed of MM. Brouardel, Marey, and Dujardin-Beaumetz. (Academy of Medicine, session of August 2, 1887.)

dition in order to nourish the patient, we are obliged to choose the hypodermic method, or avail ourselves of the property of absorption possessed by the rectum, in order to carry out our intent.

You know the inestimable service rendered by phenic acid to surgical antisepsis. It is not surprising, therefore, that, considering the volatility of phenic acid, and its elimination by the pulmonary passages, it should have occurred to clinicians to utilize this agent in the treatment of pulmonary tuberculosis. A number of experimenters, among whom should be mentioned Dr. Filleau and my former pupil, Dr. Leon Petit, have attempted to practise subcutaneous injections of phenic acid in phthisis. I have myself made trials of this method in my hospital service, and my interne, Sapelier, has put on record a series of interesting observations pertaining to this subject.

The phenic acid injections may be made directly under the skin, or the needle may be plunged deeply into the soft parts, and even to the seat of the lesion when the injection is made in the region of the thorax.

Professor Lépine and his pupil Truc were among the first to venture intra-pulmonary injections in tuberculous patients. They made use of creasote, a two per cent. solution in alcohol, preceding this injection by one of morphine to prevent pain. They also advised iodoform injections in tuberculous cavities, as these injections had given brilliant results in abscesses of a tuberculous nature.

An ordinary hypodermic syringe is inadequate for these deep injections of phenic acid, and it would be necessary for you to make use of a larger kind, a specimen of which I here show you, and which holds five grammes of liquid. You can employ a two per cent. solution, having care to use only the pure phenic acid, previously dissolved in glycerin, which is less irritant than alcohol.

You will choose as the place for the injection the anterior part of the chest under the clavicle. The punctures should be made more or less often, according to circumstances, and their number should vary, according to the gravity and course of the disease, from two each week to two each day. Under no circumstances should they be too often repeated, for in exceeding a certain dose of the medicament you run the risk of seeing all the symptoms of carbolic-poisoning make their appearance,—coldness, cyanosis, collapsus, vomiting, black coloration of the urine. Moreover, some persons are particularly intolerant of this medicinal agent, and cannot with safety be subjected to this treatment.

In spite of some disasters, the injections of phenic acid have given quite favorable results in a certain number of cases. Almost always the appetite is improved; patients that previously were bedridden are able to get up and go out and take the air,—a great advantage in consumption, as you know. The cough and expectoration have diminished, and, what is also very gratifying, we have often seen the night-sweats, so painful to poor consumptives, disappear.

At the same time the injections of phenic acid are, as I before intimated, not without danger. Besides the risk of poisoning which you run if you resort to them, they are often irritant, and they have not entered into current practice. They ought, however, to be retained for exceptional cases, where they will afford real relief to patients. I shall return farther on to the subcutaneous method, and you will then see what progress has been accomplished by the discovery of new vehicles capable of rendering perfectly innocuous substances otherwise very irritating.

We come now to the method of gaseous rectal injections, first brought before the profession by Dr. Bergeon, of Lyons, a method founded on the labors of Cornil and Chantemesse, who had shown that among the gases capable of hindering the development of the bacillus tuberculosis the first place should be accorded to sulphide of carbon and sulphide of hydrogen. These gases are both toxic when respired in vapor, therefore it would not do to think of utilizing them by inhalation. Bergeon, inspired by a happy idea, showed how to introduce them into the economy by the rectum, and this is the really new feature of his method.

We knew already from Claude Bernard's remarkable discoveries, that, in order that a toxic substance may produce its characteristic effects, it must enter the arterial system and be thence disseminated through the organism; and, if it can be eliminated before being taken up by the arteries, it fails to produce its noxious results.

Such being the case, the introduction of toxic and antiseptic gases should be made by the intestinal canal, and as we have seen that we must respect the stomach, the rectum is the only available channel. In fact, by using the rectum as a medium of absorption, we can introduce into the economy a great quantity of hydrogen sulphide without causing

toxic symptoms. The gas after being absorbed traverses the portal system, and consequently the liver, the first emunctory for the elimination of poisons; then it reaches the lungs, where the greater part passes through the parenchyma and escapes by exhalation.

The quantity of gas administered (or the dose, if I may so call it) must not be too large, for you would run the risk of an incomplete elimination, and a part, passing into the arterial system, might determine symptoms of poisoning. Moreover, the sulphuretted hydrogen, which is so toxic, cannot be used in a state of purity; it must be diluted with some other gas. Air being too irritating, Bergeon made his choice of carbon dioxide, which is not irritant, is readily eliminated by the respiratory passages, and, besides, possesses anæsthetic properties well known to you.

He thus exhumed from the past, as Maurice Dupont has shown,* a method counselled at the close of the last century by Priestley, who recommended to the physicians of the period to employ *fixed air—i.e.*, carbonic acid—in lavement in the treatment of certain diseases.

The method of Bergeon became known by the various communications made by him to the Academy of Sciences and the Academy of Medicine. I immediately made application of it in my hospital service, and one of my pupils, Dr. Lecomte, has analyzed the results obtained, and made this the subject of his inaugural thesis.†

Let us now take a survey of the apparatuses employed for these gaseous rectal injections. The one employed by Bergeon was the invention of Dr. Morel, of Lyons; the one which I have used in my hospital was constructed by Dr. Bardet, chief of my therapeutic laboratory. There is another which I shall describe presently, which was contrived by Dr. Faucher and was presented to the Academy by Professor Cornil. Lastly, Constantin Paul has also devised a gazogenous apparatus, furnished with a manometer, which enables one to measure the pressure of the carbonic acid which penetrates the rectum.

In the apparatus of Morel, the carbonic acid is generated by pouring sulphuric acid on bicarbonate of sodium in a flask. The complete apparatus consists of a flask in which the carbonic acid is generated, of a rubber bag capable of holding six litres of carbonic acid, of a large, wide-mouthed bottle to contain the medicinal substance, and of a rubber-ball injector, which acts the part of a suction- and force-pump. The rubber bag having been filled with carbon dioxide, is adapted to the bottle, which is itself connected with the injector. It is necessary to take care before introducing the canula into the rectum to get rid of all the air contained in the apparatus by making a few pressures on the rubber ball.

This apparatus presents certain inconveniences: first, the use of sulphuric acid is an objection, for some of it is sure to come over with the carbonic acid during the effervescence and vitiate the result by the irritation which its presence causes. Then again, it is too cumbersome, and is not sufficiently portable, which is a serious inconvenience in private practice; therefore, at my request, Dr. Bardet has constructed another model in which all the parts are brought together in a convenient, portable box, and in which the carbonic acid is produced by the action of tartaric acid on the sodium bicarbonate.

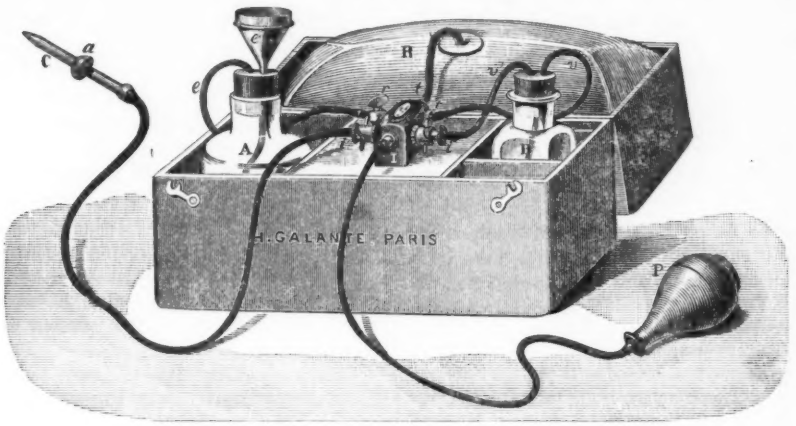
The apparatus (Fig. 1) is composed of a box with compartments occupied by (1) a carbonic acid generator, A; a wide-mouthed bottle resembling a wash-bottle, B (the *barboteur*, or mixing-bottle), and (3) an injector, I, a pear-shaped rubber ball, P, and a canula, C, etc. The canula C, with its tube, are the only parts which are outside of the box during the working of the apparatus. The injector I, whose operation depends on a play of valves, *i* and *i'*, is a solidly-fixed metallic box, connected with all parts of the apparatus by means of tubes, *r*, *t'*, *t'*, with their faucets and stop-cocks.

The gas furnished by the generator A escapes by the tube *a*, which is connected by the faucet *r* with the central metallic piece I, whence it issues by the tube *t* to enter the reservoir R. Here it is retained by the resistance of the liquid in the wash-bottle B. When once the bag R is filled, the apparatus is ready to work. The operator squeezes the ball P, forcing out the air which it contains, and which escapes by the valve *i'* and canula. Then the ball expands by its elasticity, exercises its suction-power, and fills

* Maurice Dupont, "On Inhalations and Injections of Carbonic Acid" (*Bull. de Thérap.*, 1887, t. cxii. p. 24).

† See and compare Bergeon, *Acad. des Sciences*, July 12, 1886; Congress of the French Association for the Advancement of Sciences, Nancy, August 20, 1886; *Acad. de Méd.*, November 2, 1886; Cornil, *Acad. de Méd.*, October 19, 1886; Morel, "New Treatment of Affections of the Respiratory Passages and of Blood-Poisonings by Rectal Injections, Cure," Paris, 1886; Dujardin-Beaumetz, "The Gazo-Rectal Injector of Dr. Bardet," *Acad. de Méd.*, November 9, 1886; also "On the Treatment of Pulmonary Affections by Gaseous Rectal Injections," *Bull. de Thérap*, t. cxi. p. 449.

FIG. 1.



itself with gas from the reservoir R. This gas first passes out of the reservoir, and under suction influence enters the receptacle B by the tube *v*, which dips down to the bottom of the vessel, where it becomes charged with medicinal vapors ; then it escapes by the exit-pipe *v'* to enter the injector, which it then fills, as well as the rubber ball P ; the operator now presses the ball and forces the gas out through the valve *i'* and the canula C, and continues so to do till the rubber bag, which holds just four litres, is emptied, which event makes itself known by the rubber ball remaining collapsed after being squeezed. To prepare the apparatus for use, you proceed in the following way :

1. Pour into the receptacle B enough to fill it half full of the medicinal solution which you propose to use (sulphur waters, carbon bisulphide water, warm water holding in suspension iodoform, terpinol, eucalyptol), then put in the stopper.

2. Place in the generator A the contents of a package consisting of sixteen grammes of tartaric acid with twenty grammes of bicarbonate of sodium,—a quantity necessary to generate four litres of carbon dioxide. Fill the generator half full of water by means of the funnel *e*, and shake the flask.

3. Have care to drive all the air out of the apparatus by four or five squeezes of the rubber ball before introducing the canula.

4. The injection should be made slowly and without force ; there ought to be an interval of from ten to fifteen seconds between the successive pressures made on the injector, and the entire operation should last from twenty minutes to half an hour.

As for the apparatus of Faucher, it is composed (1) of a flask, A (see Fig. 2), which receives the sulphuretted water and a package of sodium bicarbonate ; (2) of a reservoir, B, which is filled with bisulphate of sodium ; this reservoir is connected with an escape-pipe, which traverses the rubber cork which closes the flask ; (3) of a rubber tube ending in a canula.

To work the apparatus you plunge the lower part of the reservoir B into the alkaline water by pressing on the pipe T. The

FIG. 2.

gas escapes slowly and penetrates the intestine when the pressure is sufficient. If you wish to stop the liberation of gas, you raise the reservoir out of the water by drawing on the pipe T.

The working of the apparatus is then automatic ; the liberation of gas is slow enough

not to cause distention; the quantity is regulated by the amount of salts employed, and patients can manage this apparatus very well themselves.

Whatever be the apparatus or method employed the principle is the same, and it now remains for us to study the application and uses of the various substances introduced into the economy by the means above described.

Bergeon, in a recent communication to the Academy of Sciences (June 25, 1887), insists on the necessity of operating with carbonic acid gas which is absolutely pure; for if it is impure, or if it has remained a long time in the rubber bag, it loses the property of passing out by the lungs, and, accumulating in the intestine, causes meteorism and colic. As it is very difficult to purify carbonic acid, it is desirable to contrive some way of obtaining it pure at first by making use only of substances that will produce gas of a good quality.

I have already referred to sulphuretted hydrogen, and told you that since Claude Bernard's discovery we find ourselves able with impunity to introduce quite large quantities of this gas per rectum without determining toxic symptoms; we have just repeated Bernard's experiment in our laboratory in the following way:

Taking a middling-sized dog, we injected one hundred and thirty cubic centimetres of the gas by the rectum. Test-paper moistened with acetate of lead and placed before the nostrils of the animal blackened at the end of fifty seconds, and the dog, which was not muzzled or tied, remained quiet without appearing to be at all incommoded. The sulphuretted hydrogen, then, seems to have been promptly eliminated, for a few minutes only after the end of the injection the animal's breath no longer blackened the test-paper. It is by such experiments that we have been convinced that we may without danger apply to man the injections of sulphuretted hydrogen, but with the condition that the gas shall be free from air, and that the injection shall be made slowly. Dr. Bergeon advises the use of the natural sulphur waters only, having observed that the artificial sulphur solutions are often irritant. This, however, is not necessarily the case, and the main thing is to see that the sulphuretted hydrogen is pure.

In our hospital service we use the following solutions, and according to the process given below:

1. Sulphur Solution.

℞ Pure sulphide of sodium, 10 grammes;
Distilled water, q. s. to make 100 cub. cent. M.

2. Acid Solution.

℞ Tartaric acid, 25 grammes;
Salicyclic acid, 1 gramme;
Distilled water, q. s. to make 100 cub. cent. M.

We introduce into the glass mixing-bottle of our apparatus five cubic centimetres of each solution, a mixture capable of setting free fifty cubic centimetres of perfectly pure hydrogen sulphide; this is dissolved in two hundred and fifty cubic centimetres of pure water, and it is through this mixture that the carbonic acid is made to pass.

I have employed the bisulphide of carbon in the form of carbon bisulphide water, whose preparation and uses I have pointed out to you in previous lectures, and especially under the head of intestinal antisepsis;* this water may be put just as it is into the mixing-bottle.

You see that we may vary almost to an unlimited extent the number of substances capable of being absorbed by this process, but I will indicate only the principal: we have, for instance, employed eucalyptol, terpinol, iodoform, this last substance being solid was held in suspension in warm water; lastly, we have made use of carbonic acid alone.

How has this mode of treatment been borne by our patients? In a certain number of cases we have seen the cough diminish, the expectoration modified, and the respiratory distress abated; some have recovered their ability to sleep and their appetite. These happy results, whenever we have obtained them, were due to the union of carbonic acid gas with sulphuretted hydrogen.

Fraentzel, of Berlin, and Statz have published through the Medical Society of Berlin the results of their observations on the efficacy of the method of gaseous rectal injections, and their results agree completely with those which I have observed.

The discussion which took place recently in New York on Bergeon's method, on the occasion when Kinnicut, Bruen, Shattuck, Pepper, Wood, Beverly Robinson, etc., gave an account of the results which they had witnessed from these gaseous injections, eventuated in conclusions which are in harmony with those which I had adopted from trials which I had personally made, and show

* Therapeutic Gazette, Vol. I. (Third Series), page 165.

the superiority of the combination of carbonic acid with sulphide of hydrogen over all other antiseptic bodies.

Eucalyptol, on the contrary, has given me nothing but bad results in these rectal injections. I have always seen patients grow worse after its employment; there has been an increase of the irritation under which they were suffering, and lessening, if not complete disappearance, of appetite. Terpinol has seemed to me superior to eucalyptol, but yet inferior to hydrogen sulphide.

It has seemed to me, in the conditions in which my trials with this agent were made, that iodoform did not amount to anything, and I judge that it is absorbed in too feeble quantity to have any real antiseptic effect.

You know, moreover, that if the antiseptic action of iodoform is incontestable, its antituberculous action is, on the contrary, disputed by some authorities, and especially by Rovsing, of Copenhagen, who has shown that in giving experimental tuberculosis to animals by intraocular inoculation, the course of the disease is not at all hindered by the combination of considerable quantities of iodoform along with the inoculation material. At the same time these facts have been contested by Bruns, who, in a recent communication to the Congress of German Surgeons, endeavors to show by direct experiments made on tuberculous abscesses that the action of iodoform is both specific and antibacillary. This is, however, a question still unsettled, and to be decided by future study. With regard to the action of carbonic acid when used alone, it has seemed to me to play the part of a sedative of the nervous system.

But before concluding this topic I wish to call your attention to a fact noticed by my colleague, Chantemesse, and which we have verified many times in our practice. Even in patients that manifested a marked improvement, we have not been able to note any change in the approximate number of tubercle-bacilli in the sputum. This is a fact to be remembered, showing, as it does, that if by the employment of gaseous rectal injections we may be able to improve the condition of our patients, the cause and the germ of the disease have escaped the action of the medicament.

It remains for me, gentlemen, before finishing this lecture, to speak to you of a new and very interesting method, which was first employed in pulmonary antisepsis. I refer to hypodermic injections with a mineral-oil basis. I speak of this method here because its first applications were made with a reference to the subject which especially occupies us at this moment; but it is, as you know, of much more general application, and which has given to hypodermic medication a surprising and unlooked-for extension. One drawback of the hypodermic method, in fact, was its inapplicability the moment we wished to utilize substances little soluble or at all irritant, hence the desideratum of some such vehicle as we have now found; and, thanks to the employment of *liquid vaseline*, we may now inject under the skin substances which are highly irritant, such as eucalyptol, sulphide of carbon, and iodoform.

First pointed out by Pierre Vigier as applicable to hypodermic injections, it was my colleague, Balzer, who, in his service at the hospital Lourcine, was the first to utilize liquid vaseline as an excipient for subcutaneous injections of the salts of mercury, both soluble and insoluble. Shortly afterwards Dr. Albin Meunier, of Lyons, published a series of formulæ for hypodermic injections with a basis of liquid vaseline holding in solution various antiseptic substances, and he announced that these solutions might with impunity be injected under the skin, and without provoking any inflammatory accidents. At my request Dr. Albin Meunier sent me his products, and I was able to note in my practice the reality of his assertions. At the present time this method is actually in vogue, and is a part of current practice. It has already been in my hospital the subject of interesting researches, among which I may cite the studies of De Ley,* and of my pupil Caravais, who has made it the theme of his inaugural thesis.†

Let us inquire into this subject of liquid vaseline, for it is important to have a clear idea of what, in medical usage, we are to understand by the term. The petroleums have a variable composition according to their origin, and those of America are not comparable with those of Caucasus, or even those obtained from Europe. This variable composition explains why the petroleums do not furnish identical products on distillation. In distilling petroleum you obtain, between the temperature of 40° and 200° C., and even higher, variable bodies which are utilized in the arts. At first the petroleum ethers come over, which are so much employed to-day in our laboratories, then the illuminating oils,

* Ley, "On Antiseptic Hypodermic Injections with a Basis of Mineral and Vegetal Oil in the Treatment of Pulmonary Complaints" (*Bull. de Thèr.*, t. cxii. p. 246).

† Caravais, "A Study of Liquid Vaseline as a Vehicle in Hypodermic Medicine" (*Thèse de Paris*, 1887).

and lastly, towards the end of the operation, we obtain paraffine and a liquid substance which is employed in the arts for machine oiling. It is this substance, purified and decolorized, which Albin Meunier has employed for subcutaneous injections, and which, according to the quantity of paraffine it contains, has a density between 0.810 and 0.870. This substance, which is liquid, of thin, syrupy consistence, ought, for officinal uses, to be absolutely neutral in order to be readily tolerated by the tissues. It dissolves a great number of bodies, and in particular, chloroform, bromine, iodine, iodoform, sulphide of carbon, myrthol, eucalyptol, terpinol, hydrogen-sulphide, etc. Bocquillon, moreover, has given us a very complete list of formulæ for hypodermic injections having for their vehicle liquid vaseline, a list which I have reproduced in my "Formulary."*

It was important, for the benefit of medical practice, to decide on a name for this new substance. While recognizing the fact that the word *liquid vaseline* is improper, since the substance recommended under this name by Albin Meunier is not vaseline, it has seemed to me to be best to keep this name, which was given by the discoverer; and if you say in your prescriptions *medicinal liquid vaseline*, you will sufficiently indicate the conditions of purity and of neutrality which the product ought to have. It was necessary to decide this point, for there exist in commerce certain so-called "liquid vaselines" which are only mixtures of petroleum and of vaseline, and which, even when tolerably pure, may give rise to very serious inflammatory accidents, as we have had occasion to find out.

The mineral oils do not alone possess the property of dissolving the different substances of which I have just spoken, and you can use in the same way the oils of earth-almond (*Arachis hypogœa*), and even olive and linseed oils, taking pains first to sterilize them by heating.

It remains now to state the results obtained by means of these new methods of injection in pulmonary antisepsis. I should have told you before that these liquids are admirably borne by the economy, and rapidly diffuse themselves through the organism.

Sulphuretted hydrogen and bisulphide of carbon seemed at first to produce good effects, but this salutary action did not long continue, and these medicinal agents give much less favorable results when administered in this way than when given in the form of gaseous rectal injections.

Iodine works well in the forms of tuberculosis with abundant bronchial secretion; it rapidly diminishes the cough, expectoration, and oppression. It is especially in the employment of eucalyptol that this method has rendered us real service. This is the formula proposed by Albin Meunier:

℞ Pure eucalyptol, 5 parts;
Medicinal liquid vaseline, 20 parts. M.

I have modified this formula, and now make use of solutions of equal parts. When the eucalyptol is perfectly pure, injections of a solution of equal parts of eucalyptol in vaseline, in the dose of a syringeful (one cubic centimetre), and repeated night and morning, never cause any local irritation.

Roussel, of Geneva, who is the most ardent advocate of injections of eucalyptol in the treatment of tuberculosis, and Professor Ball, in a communication made this year to the Academy of Medicine, have reported the results of trials made in their respective hospitals with eucalyptol injections. In one case, the bacilli had disappeared from the sputa of a phthisical patient. In the reply which I made to the communication of Professor Ball I showed in this connection that eucalyptol acts only on the bronchial element, and that in certain cases of phthisis, attended by much fever, it is rather dangerous than useful. This view has been confirmed by a great number of my *confrères*, and in particular by Bouveret and Péchadre, of Lyons, Laplane, of Marseilles, and Biot, of Macon, who have come to conclusions absolutely conformable to those which I had laid down, and of which the following is a *résumé*:

Eucalyptol is generally well borne by patients; at the same time it presents certain disadvantages. Some complain of the disagreeable and persistent odor of the breath, a result of the exhalation of eucalyptol by the lungs; in others, the diminution of expectoration brings on dyspnœa. Eucalyptol is, then, chiefly a modifier of the bronchial secretions, and is in no sense a specific against tuberculosis; in fact, in all the researches which we have made, we have never seen disappear from the products of expectoration the characteristic bacilli, and if injections of eucalyptol give relief to patients, they do not cure the disease.

Nevertheless, this way of administering

* Bocquillon, *Mem. et Bull. de la Soc. de Thèr.*, 1887; Dujardin-Beaumetz, "Formulaire de Thérapeutique," 1887.

eucalyptol ought to be retained in therapeutics, for when in pulmonary phthisis we can lessen cough and expectoration, and restore to our patients appetite, and with appetite strength, we have done them an inestimable service, and this is a part of our duties as practitioners, which we have no right to make light of in the treatment of a disease whose daily victims are so many.

Continental physicians seem of late to have come back again to the method of inhalations, which had almost been abandoned, and I shall here merely refer to certain new processes, which tend to show that this method may in many cases give good results. Dr. Hue, of Rouen, has experimented in pulmonary phthisis with inhalations of boiling aqueous solutions of picric acid. The results thus far have been encouraging, but too meagre to warrant us in as yet formulating a definite judgment as to the efficacy of these inhalations. I would call your especial attention to the experiments which have this year been going on in our hospital with the atmiometer of Professor Jacobelli, of Naples,* and the recent trials with inhalations of sulphurous acid.

Professor Jacobelli, who has before made known to the French medical public his method of caustic inhalations, had the extreme kindness to come from Naples with his new apparatus, which for the past two months has been operated under his direction in our hospital. What has hitherto been lacking was precision in the methods of inhalation, but Dr. Jacobelli has admirably succeeded in meeting this want by his atmiometer, which I now show you.

This apparatus is composed essentially of a perfectly tight cubical glass box, whose capacity is accurately gauged; this capacity may be increased or diminished at will by moving back and forth a glass diaphragm, which plays in an air-tight mortise; a scale registers the amount of displacement of this diaphragm. A number of taps afford communication with this cubical box by means of attachments of rubber tubes, some of which end in mouth-pieces, and some simply connect different parts of the apparatus with the central chamber. The whole rests on a flooring, and is light enough to be easily transported from place to place. One quite ingenious feature of the atmiometer is the valve placed at the extremity of the inhaling tube; this valve enables the patient to inhale the medicinal substances contained in the atmiometer, but obliges him to expire in free air. To this part of the atmiometer are adapted a pneumodynamometer, a thermometer, and a pneumetrograph, apparatus which indicate the force of respiration, the temperature of the inspired air, the quantity of air which enters at each inspiration, and even the number of inspirations.

With the atmiometer we may use vapors, medicinal powders, and pulverized liquids. When it is desired to subject the patient to the vapor inhalations, the operator brings into use a closed iron cylinder, which is heated by a spirit lamp, and communicates with the interior of the cubical box of the atmiometer. A graduated funnel enables one to gauge exactly the quantity of liquid which is to be vaporized.

In employing medicinal powders a rubber hand-ball on one side of the atmiometer is made use of; this, by successive squeezes, forces the medicinal powders into the chamber of the atmiometer.

To gauge the quantity of powders thus introduced into the cubical box, Jacobelli has employed an ingenious artifice. On each of the lateral and opposite sides of the atmiometer is written the word *Pulvidensimètre.* This word forms fourteen distinct images on the inner (glass) faces of the apparatus, when the chamber is free from the medicinal dust, but as soon as the powder enters the compartment, diffusing itself through the air, it obscures the images reflected on the glass sides, and they become more and more faint and disappear in proportion as the quantity of powder admitted is considerable. One can thus, by the number of images made to disappear during the process of inspiration, estimate the quantity of powder contained in the compartment.

For the atomization of liquids two air-pumps placed on the sides of the atomizer, and worked by peculiar handles, enable the operator to exhaust the air in the atmiometer, and bring into use certain rubber-ball injectors of various forms and patterns. By these the atmiometer is dosed with any required liquids, which the patient inhales through his breathing-tube.

Such are in brief the principal arrangements of the apparatus of Jacobelli. They have for their end to fulfil the following indications: first, to gauge as far as possible the quantity of medicinal substances in the form of powder and vapor, for inhalation, then to make of a single apparatus a vaporizer, inhaler, and atomizer. Let us now examine the therapeutic applications of this atmiometer.

I shall speak here only of the results obtained in our hospital in affections of the lungs. Taken as a whole, these results have been advantageous, as you can judge by the following statement:

Ten patients were affected with pulmonary disorders; four were chlorotic; one presented marked dilatation of the stomach. The ten patients with lung-diseases were affected as follows: two were subjects of hæmoptysis, two had chronic emphysema, one gangrenous bronchitis, and five others were tuberculous.

The patients suffering from hæmoptysis had their bronchorrhagia arrested with extreme rapidity by breathing the air of the atmiometer put in communication with a reservoir containing vaporized perchloride of iron. The

* Jacobelli, "On Caustic Inhalations" (*Bull. de Thérap.*, 1887, t. cxii. pp. 105 and 166).

effect of this treatment was so well marked in these two patients, and in particular in one of them whose hæmoptysis was twice arrested under the influence of these inhalations, that we could not but attribute to their use the cessation of the hemorrhage. At the same time, we ought to bear in mind the fact that in our experiments on animals, and in placing ourselves in the same conditions, we have never been able to detect the presence of perchloride of iron in the interior of the air-tubes.

In two patients affected with chronic bronchitis and emphysema, the inhalation of air charged with vapors of turpentine and iodoform dissolved in ether has produced a marked amelioration. This improvement has pertained to the expectoration and dyspnœa, which have both remarkably diminished.

In the case of the tuberculous patients who have been subjected to the inhalations of turpentine and iodoform, the gain pertained chiefly to the expectoration and cough; we noticed no lessening in the number of bacilli in the sputum. As for the fever, if in certain cases it has been allayed by these inhalations, in others it has not been at all influenced.

Lastly, in the case of superficial gangrène of the bronchi we noticed under the influence of these same inhalations a diminution in the quantity and odor of the sputa.

As you see, Professor Jacobelli has given a notable progressive impetus to atomization, enabling us to utilize to better advantage than we have ever done before the method of inhalations. I come now to the experiments made with sulphurous acid.

It is only since the communication made to the Academy of Medicine, March 8, 1887, by Dr. Solland, that the attention of the medical public has been called anew to inhalations of sulphurous acid. In his paper Dr. Solland reports the radical cure of a case of pulmonary phthisis as the result of a prolonged sojourn in a sulphurous atmosphere. The patient was a man, 26 years of age, sergeant in a regiment of marine infantry at Cherbourg; this man was manifestly tuberculous, and his sputa contained a great number of Koch's bacilli. Placed in charge of some workmen commissioned to disinfect the wards of the hospital of Cherbourg by the combustion of sulphur, this sergeant derived so much benefit from the inhalations of sulphurous acid in the lung-troubles from which he was suffering, that he continued to sojourn a long time in rooms where sulphur was burning, and at the end of a certain period he was so far restored that the bacilli had disappeared from the sputa, and the stethoscopic signs of phthisis no longer existed.

In view of this fact, Dr. Solland has endeavored to make the method of general applicability, and this is his mode of procedure: In a confined apartment he burns a quantity of sublimed sulphur in the proportion of twenty grammes per cubic metre, then he waits twelve hours and causes the patients to enter the room where the sulphur was burned, and remain there for a space of eight hours.

We have reproduced these experiments in our hospital, but under somewhat different conditions, on account of the construction of our barracks, which give a too ready escape to the sulphurous acid. We first burn five grammes per cubic metre, then ten, then fifteen, and finally twenty grammes, and two hours afterwards we introduce into this room our patients, who sojourn there four hours. Under the influence of this treatment we observe a speedy change in the expectoration, the cough diminishes, and the patients sleep much better. These experiments are still too recent for us to be able as yet to pronounce a definite judgment as to the utility of these inhalations; they seem, however, to be perfectly harmless, and not to provoke hæmoptysis, as at first we feared they would. Among the patients under experimentation I have, in fact, chosen certain persons who had been much subject to hæmoptysis, who have not seen their hemorrhages return under the influence of these inhalations.

Dr. Auriol, of Bellegarde du Gard, having noticed in workingmen who are constantly exposed to the fumes of burning sulphur the beneficial action of these inhalations in pulmonary affections, has treated seventy tuberculous patients by this method, and has observed several cures, and in every case amelioration.

If you desire in your private practice to repeat these experiments with sulphurous acid inhalations, I advise you to proceed in the following way: Select a room of small size; take its exact cubic dimensions, stop the chimney, and close the windows and doors; then burn a quantity of sulphur, which you can make to ignite by means of alcohol poured over its surface; begin with small quantities, as five grammes per cubic metre, and increase every day by five grammes to twenty grammes. Two hours after the completion of the combustion admit your patients into the room, and let them remain there four hours.

While we were experimenting with these inhalations, one of our licentiates, M. Villi,* found another very ingenious mode of introduction of sulphurous acid. Recalling to mind that medicinal liquid vaseline had already served as a vehicle for sulphuretted hydrogen in subcutaneous injections, he conceived the idea of utilizing this liquid vaseline for the introduction of sulphurous acid. When you shake together sulphurous acid and liquid vaseline, the latter absorbs a variable quantity of the gas, according to the temperature. At 8° C., for example, one hundred grammes of liquid vaseline absorb 1.30 grammes to 1.50 grammes of anhydrous sulphurous acid. It is this solution which we have employed for subcutaneous injections in our tuberculous patients, and we have thus had another series of experiments alongside of those undertaken with the inhalations of sulphurous acid.

Note, first of all, that these injections are scarcely at all painful, and are never accompanied by phlegmons, even when five cubic centimetres of this solution are injected at one time. These injections must be made in the place indicated by Smirnoff,—namely, the hip muscles of the retro-trochanteric fissure.

The results obtained have been the same as those which attended the inhalations of sulphurous acid, but with much diminished intensity; and it is always the change in the expectoration, the lessening of the cough, and the production of more natural sleep, that patients insist upon as a consequence of this treatment.

What becomes of the sulphurous acid thus introduced under the skin, and under what form does it enter the blood? How is it eliminated, and what is its mode of action? These are questions for whose solution we have undertaken a series of physiological experiments, which you will find described in the thesis of my pupil Dr. Darieix.

As for the future of these inhalations, this is quite uncertain, and we shall not be able to pronounce positively on this subject till a sufficient number of facts have been obtained to justify formal conclusions.

I have now completed what I wished to say respecting the new antiseptic methods, and have, I think, sufficiently indicated the promise of future advantage held out to us in this direction, as well as the great extension of therapeutic resources likely to accrue therefrom.

* Villi, "On the Employment of Sulphurous Acid in Hypodermic Injections" (*Bull. de Thérap.*, t. cxiii., 1887, p. 132).

CONTRIBUTION FROM THE LABORATORY OF EXPERIMENTAL THERAPEUTICS, UNIVERSITY OF PENNSYLVANIA.

THE PHYSIOLOGICAL ACTION OF CIMICIFUGA RACEMOSA.

BY RANDALL HUTCHINSON, A.M., M.D.†

SOME of the preparations of cimicifuga have been more or less extensively used by both regular and eclectic practitioners for the past fifty years; yet no accurate study of the drug has ever been made, save that which clinical experience alone has taught us.

On what its remedial properties depend has never, so far as I can learn, been isolated. Two resins, an acrid principle (which is possibly an alkaloid), starch, tannin, gum, and a volatile principle have been found in it. The latter, Dr. George B. Wood thinks, is the active principle, since the drug deteriorates by keeping.

When 90 minims of the officinal fluid extract were hypodermically injected into the side of a healthy male rabbit (weight, 2½ pounds), the chief symptoms noticed, after fifteen or twenty minutes, were those of a sedative and quieting agent, the rabbit manifesting a disposition to sit in one place, being unwilling to move around unless made to do so, and when taken up in the hand did not struggle nor endeavor to free itself, but remained passive and quiet even when laid on its back. There was no motor paralysis. The respirations were noticed to become somewhat slowed, and the pupils slightly dilated.

Turning now from this simple experiment on the rabbit to the frog, we find, when a sufficiently large quantity of the drug (30 minims) is injected into the posterior lymph-sac of a moderate-sized frog, in a few minutes symptoms of apparent motor paralysis come on, so that the frog will lie passively on its back, with its limbs extended and perfectly relaxed. At the same time it is noticed that the batrachian rapidly becomes cyanosed, and that there is a progressive failure of the respiratory movements.

When the frog was fully under the effects of the drug, neither direct irritation with a needle nor burning of its feet elicited any response of pain or motion.

It was proven that this paralysis was not due to an implication of the motor apparatus by the fact that the frog possessed the power

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of voluntarily drawing up its limbs till the point of death.

When the sciatics of the paralyzed limbs were exposed and galvanized by a current from a single cell of a small battery, we got the usual response in the tributary muscles. It was further shown, by the tying of the artery of a frog's leg close up to the body, thereby protecting that limb from the direct effects of the drug on its nerves and muscles, and injecting the drug as above, that the paralysis came on in that protected leg *pari passu* with the unprotected parts, proving that this paresis was not due to a peripheral or trunkal nerve influence.

That these experiments were correct was also shown by the non-appearance of the above symptoms of loss of reflex action and paralysis when an artery was tied and the drug injected directly into the protected limb. From these experiments, carefully repeated, it would therefore seem that this drug, cimicifuga, is a direct sedative, and in large doses paralyzant, to the frog's spinal cord, exerting its dominant effect on the receptive centres or the afferent nerve apparatus, and perhaps, to a limited degree, on the efferent nerves.

On the circulation the action of cimicifuga is a decided depressant, a fact which was strongly pointed out by the clinical evidence of Dr. N. S. Davis (*Trans. Am. Med. Assoc.*, vol. i. p. 351, 1848), and also by Dr. F. N. Johnson (*Reports N. Y. Hospital*), and confirmed by the following experiments.

When the cut-out frog's heart is thrown directly into the undiluted preparation its beats are decidedly slowed, and after a few contractions it is stopped in diastolic arrest; yet when removed, if it has only remained in the solution for a minute or two, seems capable of responding to direct stimulation.

When the drug is dropped upon the exposed frog's heart *in situ* it seems to act, so far as the eye can discern, in a similar manner, stopping that viscus in diastolic arrest.

From these experiments, carefully repeated, it would seem to be conclusively proven that this drug, cimicifuga, has a direct depressing action on the frog's heart, acting either on the cardiac muscle or on its contained ganglia.

The experiments made on the higher animals,—the dog and rabbit, for example,—which now followed, show that the drug seems to affect the mammalian circulatory system in much the same manner as that of the lower forms of life.

It is evident from the accompanying tables, taken from the tracings of the kymograph, that when a sufficiently large quantity of this drug is thrown directly into the circulation (jugular vein) it causes the arterial pressure to fall and the force and frequency of the pulse to be diminished.

The following table of tracing, as taken by the kymograph, on dog (weight, 15 pounds), shows fall in blood-pressure and slowing of pulse-rate after injection of drug into jugular vein. Dog afterwards killed.

Time. A.M.	Drug.	Pressure.	Pulse.	Remarks.
11.45	.....	166–176	158	
11.45.10	5 c.c.	164–170	158	Injection begun.
11.45.20	.....	166–130	162	Injection ended.
11.45.30	.....	120–88	130	
11.45.40	.....	84–102	126	
11.45.50	.....	102–140	102	
11.46	.....	140–146	108	
11.46.10	.....	166–176	132	
11.46.20	.....	162–164	126	

That this slowing of the heart's action is not due to inhibitory stimulation, either centric or peripheral, is proven by the fact that it takes place just the same when the vagi nerves are cut, thereby isolating the heart from its inhibitory centres; neither is it due to peripheral influence, for on galvanizing the vagi, before and after injecting the drug, the relative slowing is equally as great at one time as at the other.

The following table of tracing, as taken by the cardiograph, on dog (weight, 8½ pounds), shows fall in pressure and reduction in the pulse-rate after injection of 2 c.c. of drug into jugular vein, and after section of both vagi nerves. Dog afterwards killed.

Time. P.M.	Drug.	Pressure.	Pulse.	Remarks.
4.45	.....	134–108	150	Vagi nerves cut.
4.45.10	2 c.c.	136–104	144	Injection begun.
4.45.20	.....	130–66	120	Injection ended.
4.45.30	.....	76–112	102	Respirations very slow and shallow.
4.45.40	.....	116–144	120	
4.45.50	.....	130–154	120	Dog struggled.
4.46	.....	120–146	138	
4.46.10	.....	104–122	132	
4.46.20	.....	102–116	132	

The slowing must, therefore, be due to a direct action of the drug on the cardiac muscle or its contained ganglia. This fact is also in direct accord with its action on the isolated frog's heart.

To explain the fall in the arterial pressure is not so easily or satisfactorily done.

Here the question arises, Is the fall in

pressure due to the diminished cardiac rapidity and force? Undoubtedly this is a most important factor in the primary fall, but does not, I think, account for the continued low pressure after large doses have been administered.

Indeed, the following experiment would seem to show quite clearly that the depressed heart does not alone account for the lowered arterial pressure, but that the vaso-motor system is depressed or paralyzed by the administration of large doses.

Injected 10 c.c. of the pure fluid extract directly into the circulation (jugular vein) of a small-sized dog (weight, 22½ pounds); almost instantly the pressure fell to within a few millimetres of the abscissa line. After two or three deep respirations the respiratory movements ceased, the pulsations of the heart became slower and slower and more labored, but it continued to pulsate for some seconds after the respirations had ceased. Yet during this period of asphyxia there was no rise in the arterial pressure, proving that the vaso-motor centres must be in a state of paralysis, and not capable of responding to the asphyxial stimulus.

From these experiments it is indicated that the diminished arterial pressure is due, first, to the direct depressing action of the drug on the heart itself; and, secondly, when in large doses, to the combined action on the heart, and a paralyzant to the vaso-motor centres at the base of the brain.

On the respiratory system large doses of cimicifuga lessen the number of respirations per minute, causing them to become slow and shallow, altering the rhythm, and finally stopping them completely, while the heart continues to pulsate for some seconds. Since these phenomena occurred equally after section of the vagi, they must be due to the action of the drug exerted upon the respiratory centres at the base of the brain.

When full therapeutic doses of the drug are taken into the human system, it produces a sense of fulness of the head, giddiness, intense frontal headache, dimness of vision, and vertigo, with a feeling of general malaise and aching of the limbs.

The reduction in the force and frequency of the pulse is, according to Dr. N. S. Davis (*Trans. Am. Med. Assoc.*, vol. i., 1848), a constant symptom after the administration of cimicifuga.

In some instances it causes nausea and vomiting, some looseness of the bowels, and occasionally purging.

TEREBENE FOR THE RELIEF OF DYSPNŒA.

By D. M. Cammann, M.D., New York.

TEREBENE in a general way may be said to possess properties similar to members of the group of terebenthinates the healing effects of which have so often been vaunted in the treatment of bronchial affections and diseases of the lungs. It is prepared by the action of sulphuric acid upon oil of turpentine. It is less irritating when applied to the skin or taken internally than oil of turpentine. In many cases it at first increases secretion from the bronchial mucous membrane, but almost invariably in a few days, and usually at once, it causes a diminution of bronchial secretion. Dr. Murrell, of London, has proved that in the proportion of one to five hundred it checks, and of one to one thousand prevents, fermentation, and from these experiments he proposes it as a remedy in emphysema, flatulence, etc. Articles by Murrell* and Suckling† speak favorably of its use. In a paper by myself, read before the New York County Medical Society (*N. Y. Medical Record*, October 8, 1887), its use in diseases of the lungs is strongly advocated.

The symptom upon which terebene seems to have the most marked effect is dyspnœa. This is probably due partly to a stimulating action on the heart and to a contraction of the smaller blood-vessels, partly to astringent properties and diminution of the secretion from the bronchial tubes, and partly to the relief which it affords to the flatulence with which so many of the patients suffering from emphysema and other forms of lung-trouble are afflicted, and thus allowing full play to the diaphragm by removing pressure from below. During the past year careful histories of a number of cases have been kept for me by Dr. W. L. Carr in which terebene has been prescribed. Some of the cases have already been published. I give some additional cases below:

Case I.—Emphysema; George N., æt. 38, cigar-maker; November 23, 1886; his family history is good.

Present History.—From twenty-six years of age had a winter cough; when twenty-eight was coughing, and expectorated about a half-cupful of dark blood; coughed after that, but expectoration was not bloody; after

* Murrell, "Pure Terebene in Treatment of Winter Cough" (*Brit. Med. Journal*, December 12, 1885).

† Suckling, Ibid. (*Brit. Med. Journal*, March 20, 1886).

three days spat up a little more blood; no pain in chest; no fever; expectoration was quite free; sputa dirty; did not lose in flesh; thinks that he grew stouter. Since then has coughed more or less, winter and summer; always more in winter; expectoration has sometimes been streaked with blood, but he has never had profuse hæmoptysis; for the past few days has expectorated "lumps of blood"; some soreness on left side.

Present Condition.—Well nourished; no fever or sweats; dyspnœa on exertion, but not otherwise; never at night; coughs most in the morning; expectoration not always easy; sputa generally yellowish-white; some pain on left side, in mammary region; appetite good; bowels not quite regular.

Physical Examination.—Chest well developed, and thickly covered with adipose tissue; pulmonary resonance on percussion; harsh respiration under both clavicles and at both bases behind; expiration a little longer than inspiration over both lungs; respiration feeble at bases of both lungs in front; coarse râles at bases of both lungs in front in axillary and infrascapular regions; right side, in front, cog-wheel respiration. Rhus aromatica, ♏ xx q. i. d.

November 27.—Expectoration this morning was blood-stained, afterwards thick with blood. Since last entry expectoration and cough somewhat increased; thinks that he took cold just before beginning the use of the rhus; some pain in left side; appetite and bowels good; urine free and more in quantity.

November 30.—Hæmoptysis still continues; urine increased in quantity; appetite improved; cough less frequent. Discontinued above and gave terebene, gtt. xv q. i. d.

December 4.—No blood since Monday (five days); expectoration white; does not cough as much; bowels loose; appetite fair; urine about the same.

December 11.—Bowels loose; urine more free; coughs more than he did; not as much mucus expectorated; sputa dark, not yellow; pain on left side; no hæmoptysis.

December 28.—No blood; expectoration not so free,—only in the morning, not during the day; no pain; appetite fair; bowels open twice a day; urine same; thinks that he has eructations of wind after the terebene; tongue is clean.

January 13, 1887.—Raised a little blood-streaked sputa last week; still coughs in the morning, but not during the day. Terebene continued.

January 25.—Has been coughing more than usual during past two or three days; no blood; hardly any pain. Discontinued terebene; a catarrhal condition of nasal passages. Cough-mixture was ordered, maltine and compound syrup of hypophosphites.

January 29.—Catarrhal condition referred to above is better; has been troubled with catarrh during the winter for a number of years. Stop cough-mixture; ℞ Terebene, gtt. xv q. i. d.

February 19.—Some catarrhal ozæna; coughing some in the morning; expectoration during the day; sputa yellowish and white, sometimes frothy; no blood; appetite good; bowels regular; is working three or four days a week. Maltine and cod-liver oil; terebene.

March 1.—Hæmoptysis last night; blood not very much; no cough in the morning; shooting pains in chest.

Case II.—Bronchitis and asthma; Margaret M., æt. 45, washerwoman; February 1, 1887. She has had muscular and subacute articular rheumatism. She is subject in the winter to colds. Began to be short of breath last August; now she is short of breath on exertion and when lying down; cannot sleep except in a chair; coughs most in the morning; expectoration after a long paroxysm of cough; sputa white, sometimes frothy; pain in chest and between shoulders; is feverish and at times has profuse perspiration; appetite fair; bowels not regular. She gives a history of asthmatic attacks, and physical examination shows the presence of bronchitis.

Treatment.—Terebene, gtt. x q. i. d.

March 15.—Much improved; condition generally better; dyspnœa and cough less; expectoration easier; urine free; bowels moved with pills. Terebene increased to ♏ xv, in mucilaginous mixture.

March 22.—Breathing easier; don't cough, except a little early, when waking; expectoration easy, and sputa white; appetite fair; bowels regular; urine clear and free; eructations after taking the medicine.

Case III.—Phthisis pulmonalis; Carrie W., æt. 25; May 5, 1887; her father died of heart-disease at the age of 28.

Previous History.—Says she had pneumonia five years ago; did not have a doctor, but was examined at a dispensary; had never had any cough before that time. Once in a while after that she would expectorate blood-stained sputa. Used to have a cough almost all the time, but generally most in March. She has had four children; three died in infancy.

Present History.—She had a severe hemorrhage on March 2; cough was severe and expectoration difficult, with bloody sputa; "had pain in chest and around heart;" had fever, but no chills; heavy sweats, diarrhœa, and vomiting. She coughs most in the morning and at night when lying down; cannot rest well on the left side; is short of breath on exertion and in the morning; sputa thick and yellow; pain in right side; no night-sweats or fever; feels exhausted; has lost in flesh; appetite poor; bowels regular; menses irregular and scanty. ℞ Terebene, ♏xv q. d. in mixture.

Physical Examination.—On percussion, dulness under right clavicle. On auscultation, bronchial breathing and bronchophony under right clavicle; harsh respiration over both lungs in front, most marked under left clavicle; feeble respiration at both apices behind; harsh below; coarse râles at right base behind.

May 7.—Cough is easier; sputa are thin and watery; breathing is easier, and she can sleep much better; little pain in right side; bowels regular; urine about the same.

Case IV.—Phthisis pulmonalis; Elizabeth K., æt. 36; May 12, 1887. Her family history is good. Last May she had a cold, and the doctor told her she had trouble in the lung; had cough and fever; no pain in chest; no hæmoptysis; had laryngitis, which began in November, 1886; night-sweats; emaciated; now she has some cough, with yellow expectoration; sometimes has night-sweats; has lost in flesh; appetite fair; sometimes has pain in left lung; yesterday for first time had hæmoptysis; lost quite a good deal of blood. ℞ Terebene, ♏xv q. i. d. in mixture. She was also given the compound syrup of the hypophosphites and cod-liver oil.

Physical Examination shows consolidation at the left apex and a good deal of pleuritic exudation in the left side; some fluid in left pleural cavity.

May 21.—Less dyspnœa; cough less; sputa diminished and yellow; urine same; sputa bacillated.

June 2.—Dyspnœa and cough less, and sputa diminished in quantity. She coughs, however, at night about as much as formerly.

Terebene is not disagreeable to take, and I have not found any difficulty in having my patients continue it for several weeks or even months.

Only after a considerable time and its use by a number of observers should a drug be received as a useful member of the Pharmacopœia. Terebene bids fair at present to earn its right to occupy such a place.

19 East Thirty-third Street, New York.

CURIOSITIES OF THERAPEUTICS.

By G. Archie Stockwell, M.D., F.Z.S.,
Port Huron, Mich.

(Concluded from page 669.)

V. PSYCHO-PHYSICAL EVOLUTION OF MEDICINE.

FROM the stand-point of the vulgar masses essences that "walked not in the light"—that is, were unresolved—were supposed to seek opportunities to re-enter upon mundane existence, even in inferior station or capacity, in order to work out the expiation that would permit permanent unity, or *Perfection*, with the Supreme. From this, with the Buddhistic branch of Veda-Brahmism, arose the doctrine of Transmigration,—an exoteric explanation wrested from the priesthood in the same manner as the purgatorial confession of the Romish Church was obtained from Gregory the Great.* This was a matter of state polity, and subsequently elaborated in order to perpetuate esoteric tradition, and to embrace the so-called metempsychosis of Gautama,† to which was added the conceptions of the vulgar of future places of reward and punishment as derived from esoteric references to the ordeals and initiations of the Colleges.‡ A wandering unresolved spirit of

* In the popular belief of Middle-Age Christianity, St. Peter sat as a doorkeeper at the gate of Heaven: to him it had been given to "bind or loose," consequently he denied or admitted the spirits of men in consonance with his own pleasure. This, however, was a power many (even among the priesthood) were disposed to deny, as being anticipatory of the "Judgment," which would thus be rendered nugatory or needless. Soon arose a demand similar to that now agitating one of the orthodox sects of the religious world,—a demand for a period of probation, and resting-place for departed spirits,—which was met in the latter part of the thirteenth century by Pope Gregory granting a "place of purgation,"—*Purgatory*.

† According to tradition, Buddha has appeared, or eventually will appear, upon earth twenty-two times, in some mundane form: and this metempsychosis, by vulgarism, has been extended and multiplied to one thousand, of which more than six hundred have been accomplished.

‡ It must be remembered, like all religions, Christianity was *Mystical* in its early days. Primarily *Mystery* had a different signification from that now attached to the word: it was equivalent to *Instruction*. Baptism,

evil, chancing to encounter another and weaker in possession of a mundane economy, *might* usurp the place of the latter, and thus obtain temporary relief, the latter being forced to accept the burdens of the former. As a sequel of such belief and teaching,—a teaching perfectly in consonance with the primitive condition of the uneducated mind,—the ill, insane, feeble-minded, epileptic, etc., exactly as is true among savage and Oriental races of to-day, were deemed holy,* and regarded with superstitious awe as being invested with emanations from the supernatural world. Syncope, like ecstasia and delirium, was in some measure separation of the soul from the body, or the overthrow of the material essence by contending spirits, or perhaps a temporary summoning thereof into the "Awful Presence" for purposes known to the latter alone: and by the *Koran*, and unwritten laws of barbarism, those stricken with any form of mental insensibility or rapture are not to be interfered with, lest the act tempt the displeasure of the spirits or Supreme to the detriment and undoing of those meddling.† Such is the origin in part of various orders of religious mendicants and devotees; and in this also we see a yielding on the part of knowledge to meet the demands of primitivism, which assigns spirits to all things, and requires an essence for the inert and inorganic as well as the vital and organic.‡ Among other esotericisms, some of which yet obtain in various guises in the midst of the highest civilization, we find various spirits permitted to serve as attendant sprites for the warning, torment, and torture of the embodied evil of earth, whereby they work out their own expiation :§ this is the original doctrine of familiars, ghosts, *lares*, *manes*, etc. But for the most part, essences, whether temporarily or permanently separated from the mortal clay, if not within the pale of Perfection, are condemned to walk in "outer darkness," tortured by inability to return or Perfect,‖ until such a time as they shall have attained the purity that will enable them to encompass one or the other of the desired ends. Ultimately, however, Perfection will result, at the period of final restitution that must overtake all things, when they will be merged into that whence they were derived,—the Infinite.

The usurpation of the corporeal form was *prima facie* evidence of imperfection and inharmony on the part of the individual body and its vivifying essence,—an inharmony that by the Masters of the *Mystai* was recognized as amenable to influences developed from or through the Infinite Intelligence—biologic force—in proportion to the ability of the operator, and faith upon the part of the operated. Knowledge of this force, as had through Mystical education, was prompt, certain, and sure in its phenomena, though not perhaps in its effects; but when such power was derived from inharmony, or interrupted

sacrament, confirmation, eucharist, "The Lord's Supper," all are acts and formulæ derived from the *Mystikos Sekos*, or Colleges of antiquity, and all, even as late as the fourth and fifth centuries, were termed *Mysteries* by Christians. So, too, the passion plays, intended for popular instruction, bore like name. (See McClintock and Strong's "Biblical, Theological, and Ecclesiastical Cyclopædia," vol. vi. p. 785.) From the scenes exhibited in celebrating the *Mysteries*, and in their initiations, were copied the anthropomorphic ideas that even yet obtain regarding heaven and hell. During the ordeals a candidate yielding, was suddenly plunged into deep and dark subterranean chambers, from which, if he issued alive, it was at the expense of his reason. An excellent and vivid description of these "dark abodes," and of the tortures of probation, occurs in an old French romance of the last century, entitled "The Life of Sethos." These chambers, in partial state of preservation, have been discovered by modern explorers: and at Uxmal, in Yucatan, in an artificial mound of peculiar construction, known as the "House of the Dwarf," such exist in their almost original perfection, their ceilings forming triangular arches, a shape adopted undoubtedly in accordance with certain Mystical teaching (esoteric), since circular arches exist elsewhere. These arches are the counterpart of those described by Enoch, the apices of which are stones engraved with mirific characters. (See THERAPEUTIC GAZETTE, August, 1887, p. 541, Appendix N.) The same arch is found in the Chaldean tombs at Mughier; in the centre of the great pyramid of Ghizeh, in Egypt; in the most ancient monuments of Greece (the treasure-room at Mikēne, and in the tombs of Etruria, etc.), Persia, and Petra.

* Everywhere in the Orient the mentally afflicted are deemed *sacred*. Epileptics, like those from whom Jesus of Nazareth "cast out devils," are frequently inclined to claim for themselves holiness. See Ireland's "Blot on the Brain," p. 40.

† See p. 233, THERAPEUTIC GAZETTE for April, 1887; also Conjuration of *Pou-ni-ka-ma-ta* in the same for May, 1887, p. 308.

‡ Ibid., April, 1887, p. 229.

§ Says Mr. Brainerd in "Historic Incidents in India," speaking of the primitive race of *Shanars*: "Their religious ceremonials have reference to the influences disembodied spirits exert over the condition of the living. . . . These spirits are supposed not only to take up their abodes in dwellings, but also in the bodies of the living, whereby the individual consciousness and responsibility of the person possessed is supposed to be suspended." Note, too, the incident in the *New Testament* related by Luke, chap. viii. 27–30, and Mark v. 2–8; also Draper's "Conflict of Religion and Science," p. 120.

‖ Matthew xii. 43–45.

through lack of familiarity with the laws governing its production and application, it was uncertain.* Familiarity with these laws could be obtained only by the long and arduous education that had for its graduation the "new birth,"—an education which even Bishop Warburton admits to have been the "nature of the phenomena concerning the secrets of the world." Hence the Nazarene, confident in his Perfected superiority as obtained through the Colleges of Egypt, familiar with the laws whereby prompt obedience is demanded of the nerve-centres, "cast out demons," healed the epileptic, relieved the palsied, and restored the afflicted to their "right minds."† That such were by no means uncommon phenomena among the *Mystai*, and deemed the reverse of miraculous save perhaps in the eyes of the vulgar, we have frequent evidences in the Old Testament and the doings of Prophets, or *Mac*, and also the testimony of Christ himself as reported in the "*Gospels*":‡

"And if by Beelzebub I cast out demons, *by whom do your sons cast them out?*"—*sons* in this instance referring to the Jewish *Mystai*, for he was speaking to the Pharisees, who were all men of the Mysteries, and who sought to array the rabble against him by the assertion his power was illegitimately obtained through a mythically esoteric personage. "Therefore shall *they* (the Hebrew Colleges) be your judges. But if I in the Spirit of God cast out demons, then is the kingdom of God come among you. How can one enter the dwelling of *the strong* (of power) except he first find the *strong?* . . . Every sin and blasphemy shall be forgiven *you* men: but the blasphemy of the Spirit shall not be forgiven . . . neither in this age, nor that which is to come. Either make the tree good, and the fruit is good; or make the tree corrupt, and its fruit is corrupt: for the tree is known by its fruit. Ye offspring of

* Matthew vii. 13–24.

† Ibid., xii. 24–28.

‡ In quoting the above I have availed myself of the Greek, which, as will be seen, compares favorably with the New Version by employing the optional (marginal) notes. That the mind can make contact with other minds, and with objects we are pleased to term inanimate and inorganic, through *other* channels than the five senses, is now becoming slowly recognized. It must be remembered that of the many thousands of years of man's residence upon this earth, but a very brief period of existence, so far as our knowledge and history extends, can be claimed for inductive science; and it is somewhat absurd, though in perfect consonance with human egoism, to claim the mystery of the universe has been probed to the bottom. Professor Crookes truly remarks, "We live in a world of marvels, of which not one-millionth part has ever been guessed, much less discovered, roughly giving the title of supernatural to everything beyond our comprehension." Why mental impression—call it biologic force, or whatever you will—may be manifested at considerable distances, as yet is a problem beyond the capabilities of the human mind; but these very manifestations give evidence not only of being the reverse of the miraculous or supernatural, but of being controlled by fixed laws. Having not even mastered the alphabet of these laws, we are accustomed to judge by visual *effects* without knowledge of *cause*. That cause may have its origin in the subtle fluid man has harnessed to the electrical machine, and that is developed by the decomposition of chemical agents, is surmised. Is Life merely a factor of such decomposition obtaining generally throughout the universe? Is corporeal existence a storage-battery, so to speak, or one of many cell-factors? It cannot be denied that, under certain conditions and surroundings, individuals and animals can and do develop a force superior and entirely unlike to their muscular abilities, and that this force may be called into play through nervous inharmony and mental effort. Whence this power is derived, and where it may—or rather where it may *not*—be found, is beyond surmise, since it often, and suddenly, manifests itself in most unexpected situations. Those who have observed so-called mesmeritic and hypnotic phenomena, know that these are not obtained save at the expense of the nervous system and a waste of gray nerve-substance. May not the *Perfection* of the Mysteries, then, have been in part the means of restoring to the human battery—the nervous system—the waste expended, just as the *electrical ray* or *eel* recovers its power? If the evidence of such candid observers as Messrs. Hare, Crookes, Hallet, Stewart, Wallace, etc., may be received,—gentlemen who have no end to accomplish but scientific truth, and no interest or belief in modern Spiritualism as popularly enunciated and taught,—the removal of the bonds to a distance, as narrated in the conjurings of *Wa-ah-poos* (THERAPEUTIC GAZETTE, May, 1887, p. 311, Supplement G), is within the range of possibility, independent of trickery, though in this instance the latter was undoubtedly resorted to. It involves no phenomena that we may not see manifested in the broad glare of day by the moving of heavy articles of furniture at a distance from the operator. I have personally known a gate to be opened by lifting the latch, again closed, opened again and swung in the opposite direction, and this repeated half a dozen times in succession, the individual procuring this phenomenon meantime seated four rods away; and though muscularly the superior of the operator, my strength was insufficient to control this movement. This undesired power was a great source of annoyance to the individual in question, whose stanch orthodoxy abhorred such involuntary "coquetting with the agents of evil." He could not explain it; it came and went abruptly, and without warning, merely manifesting its return by a "peculiar tense feeling about the head," as he expressed it; and the worry resultant therefrom eventually brought him within the four walls of an insane retreat. (See THERAPEUTIC GAZETTE, May, 1887, p. 310, Appendix E.)

Vipers,* how can ye, being evil (not yet Perfected), speak good things (the truth)? For out of the abundance of the heart (knowledge) the mouth speaketh."†

Observe in the foregoing, as also in the paragraph following, a beautiful example of esoteric language, conveying reproof as well as indignation; and that the speaker not only makes his claim good to rank as an exponent of the Higher Mysteries, but wrings an acknowledgment of the fact in part from his accusers, is shown in that a moment later they concede and address him by the title of *Master*, which only accrued to those who had obtained the first of the three final degrees leading to *Perfection!* There is nothing strange that this man of foreign education should incite the enmity and opposition of the *Lab-Mac* (Chief Priests) of Jerusalem, since he was a living reproach upon their Mysteries, which had become prostituted to the most base of purposes. Listen to what he says under examination and trial for his life: "*To this end have I been born, and to this end came I into the world,—that I should bear witness of the Truth.* Every one that is *of the Truth* heareth my voice,"—*i.e.*, understood the meaning this esotericism was intended to convey. "Pilate saith unto him, 'What is Truth?'"‡.

The Supreme being an Æther permeant and permeable of space, and Life and Matter alike, emanations or rather proliferations of that Ether, it was but natural the *Mystai* should hold that change in one portion of the Fluid could not take place without influencing in greater or less degree the other two, in accordance with the law of dispersion of fluids. This was the primary physiology of the ills of animality we are accustomed to denominate *Disease*, a term that etymologically expresses disturbance or inharmony; or, in other words, disease is a sequel of impression whereby are disturbed the relations existing between the corporeal and essential, or between both and the Universal Intellect. Thus the movements of planets, such as their cycles, conjunctions, apogees, and perigees, could not be without influence upon the earth, and through it its inhabitants, in proportion to its distance therefrom,—exactly as the concentric wave-circles made by the pebble dropped into the pool disturb the equilibrium of the leaves strewn upon the surface, in proportion to the intervals,—just as the steamer ploughing through the lake washes with waves the distant beach in consonance with the law of equalization, which causes the waters to rush to supply the vacancies made by the obstructing and moving hull. Here we see another evidence of *recorded impression*. Here was the foundation of astrology, astronomy, and mathematics; and from like source was derived all scientific nomenclature,—therapeutical, nosographical, etc., besides providing titles for the various productions of earth, including the metallic bases defined by a science that itself received its baptism from the land of *Chemi* and Colleges of the Delta.§ It was discovered that the seasons depended upon solar influence,—the solstices; that other planetary movements coincided with certain arrangements of waters, growth of plants, and kindred physiographical phenomena; that the rise, fastigium, and decline of epidemics, plagues, storms, drouths, etc., etc., corresponded to certain celestial phenomena; that all things exhibited a tendency to move in cycles, even to pestilences and the artificial emanations of the human mind. Planets derived their names from those of the *Mystai* who devoted their days to the solving of problems connected with or propounded by such celestial bodies. An imperfect and empirical form of knowledge accrued to the priesthood through esotericism, whence was derived divination,‖ sor-

* "*Vipers*," or serpents in this instance has not reference to the creature: it was a Mystical term for the lower degree of *Mystai*. It will be remembered the serpent was a symbol of Nature and of the Universe.

† Note how the Pharisees, convinced in their own minds of the authenticity of Jesus' claims, yet endeavor to weaken his influence, first by demanding a *sign*, then by calling attention to his supposed ignoble origin: "Behold thy mother and brethren stand without." To which he substantially replies that all seekers after *Truth* and followers of *Pathr* are brethren.—Matthew xii. 22–50.

‡ John xviii. 38.

§ Words in general employment in our own day are survivals, such as "sunstroke," "moon blindness," *lunacy*, *saturnine*, *mercurial*, *venery*, *venereal*, *aphrodisia*, *urea*, *adonis*, May, etc. Indeed, it is almost impossible to utter a sentence without some word that philologically owes its origin to the Mysteries.

‖ Divination was the study of *impression* upon animals and other objects of nature, whence arose *sacrifice*, and whereby men were led to anticipate changes in the Universe by the most subtle of such impressions. It was the foundation of pathology and modern physiology. We to-day smile at the "goose-bone" and "chicken offal" predictions of old women, weather-wise men, and their ilk, and justly so, because they are mere lingering superstitions. We term them *coincidences*, but as nothing is without law, there must be a law for coincidence, which, in our era at least, escapes the human understanding. We admit, however, that animals receive impressions that are forerunners of great cataclysms or convulsions, like earthquakes, tornadoes,

cery, and the astrology of our history which (manifestly) is but a shadow of the real. The secrets of the *Mac* were so sacred but few, even of the sacerdotal orders, were admitted thereto,*—only those deserving of the honor; they put in practice the principle "It is necessary to keep the discoveries of the philosophers in the works of art or nature from those unworthy of knowing them," as enunciated by Roger Bacon, who was confined during many years in a prison cell by his ignorant brethren because of his erudition. The *Mac*, however, possessed of the Truth, were alike revered for their knowledge and feared for their power, and with the vulgar, as a sequel to exoteric explanations offered by the lesser priesthood, obtained a supernatural halo by reason of their supposed connection and familiarity with the Supreme. Naturally in time they came to be revered as deities; and thus arose the apotheosis, that, coming to us from vulgar sources, has been mistakenly accepted as the religion of all classes, ranks, and conditions alike. The apotheotized *Mac*, "the gods," by reason of their studies of certain planets which subsequently bore their names or titles, became confounded with these bodies, and as investigators they were supposed to be familiar with all the phenomena accruing to the changes and movements in the heavens. In this way thirty-six diseases with their titles (some of the latter now obsolete) have been directly handed down to us, that philologically or otherwise are of celestial or planetary extraction (and indirectly and by combination twice as many more); and an equal number of pagan gods are found associated therewith, that to-day, rebaptized as *saints* into the Romish Church, perform for the vulgar the same offices as of yore.† It is not becoming in us to sneer at these facts, however, since our own history and tradition is for the most part made up of esotericisms and exoteric explanations thereof; and we perpetuate the same in our daily‡ relations, being driven thereto to satisfy the queries of ignorance, infancy, and childhood; and every religious body in its confession of faith, its creed, or its catechism, deals in esotericisms,§ which as explained to the vulgar, inculcate doctrines oftentimes, that are wholly at variance with those of its founders or more educated followers. It is impossible for any two minds to see or reason precisely alike, and a trifle of divergence here, as in mathematics, by prolongation may eventually secure an impassable gulf of separation. In the Latin Church we find an educated priesthood controlled by a high pontiff, but the vulgar herd that constitute the bulk of its following receive such exoteric explanations of the doc-

etc., which for lack of better reason we term *Instinct*, but which undoubtedly is due to interrupted harmony. The *Mystai* professedly understood these things, and the means whereby such evidences were recorded.

* Clement of Alexandria writes: "The Egyptians neither intrusted their Mysteries to every one, nor degraded the secrets of Divine matters by disclosing them to the profane, reserving them for the heir-apparent to the throne, and for such of the priests as excelled in virtue and wisdom." Again, if we go to Hindustan, there we will learn of a secret society of wise and learned men, whose object is the study of philosophy in all its branches, but particularly the spiritual development of man. The leading fraternity is established in Thibet; and the high pontiff and other dignitaries of the Lamaistic faith belong to it. They are known throughout India by the name of *Mahatmas*, or "Brothers." To obtain this title it is necessary to suffer a long and weary probation, and pass through ordeals of terrible severity. Many of the *Chelas*, as the aspirants are called, have spent twenty, even thirty years of blameless and arduous devotion to their task, and still are in their earlier degrees, looking forward to the happy day when they may be judged worthy to have the title of Brother conferred upon them. These *Mahatmas* are the successors of those secret societies of learned Brahmins, so celebrated for their wisdom, from very remote ages, even in India, and of whose Colleges, always built on the summit of high mounds, either natural or artificial, Alexander the Great, when he achieved the conquest of that country, was never able to take possession. Philostratus informs us that their mode of defence consisted in surrounding themselves with clouds, by means of which they could at will render themselves visible or not, and hurling from their midst tempests, fire, and thunder on their enemies. Evidently in those early times they were familiar with gunpowder or explosives of kindred nature, and made use of these to explode mines and destroy their assailants.

† "The vulgar believed there were thirty-six demons or spirits who bore the names of the planets, and who were instrumental in procuring disease." (Origen.) The Latin Church has a like number of saints, with like properties and abilities. (See McClintock's "Cyclopædia.")

‡ Almost invariably the logical mind of the child, when instructed that "God made the world" and is a general conservator, inquires, "Who made God?" when the parents are forced to take refuge in esotericisms that are esoteric even to themselves.

§ "Jesus Christ is *God*, being the Logos. Jesus Christ is *man*, possessing the normal characteristics of humanity. Jesus Christ is *God-man*, being the union of God and man in one person. Therefore Jesus Christ is the product of an incarnation; that is, according to the plan of the Father and by the agency of the Holy Ghost, the Logos took a physical body in a virgin mother." (Dr. Townsend's "Outline of Christian Theology.") It may be seen how Perfection was deemed the union of the Supreme and man in the same person, and that the Perfected, like Christ, were elevated to the rank of Divinities.

trines of the faith as are found to be best adapted to their comprehension. Truly it is folly to "Cast pearls before swine, lest haply they trample them under their feet." Yet, social polity demands the linking of humanity by bonds, in order to insure its preservation and to secure general unity of purpose. Marriage, for instance, has as its ultimate object the perpetuation of the human race; but so far as the sequel is concerned the form of the administered rite is immaterial, and but an esotericism and mystical survival. But look behind the veil into the mysterious laws of heredity, and here will be found paramount physiological reasons for the binding of the two sexes by law,—the same reasons that originally led to the high estimate placed upon virginity and female continence,—a reason that would suppress the hostile heritage of imperfection as a sequel to physically-perfected conjunction.* Superstition has made a psychical and physiological necessity of a form that, originally a true sacrament, has now lost its original significance; but its value to the world at large is none the less manifest in spite of repeated violations and lack of higher understanding.

I have endeavored in a cursory manner to show that the Mysteries, wherever found, were established for the cultivation of science, the acquirement of knowledge, the improvement of man's moral and physical nature, the development of his intellectual and mental faculties, and a general understanding and study of the laws that govern the Universe,—all of which are immediately linked with Therapeusis. The *Mystai* made of their learning and discoveries a profound secret, surrounding with mysterious and enigmatical allegories and symbols, because, says Strabo, "To surround the things that are sacred with a mysterious obscurity is to make divinity venerable,—is to imitate its nature that escapes man's senses;" or, as Gregory of Nazianze wrote to Jerome, "The *less* ignorant men understand, the *more* they admire." And so the intermediates between knowledge and vulgarity, the priests, desired to be regarded as mediators between the Perfected and man, as were the Perfected between the priesthood and the Supreme Intelligence.

The similarity of rites practised, the identity of symbols, prove that all had their origin from a common source,—a source that is a matter chiefly of conjecture. The Brahmins claim to have taught the Egyptians and Chaldeans, and it is well known that in many of their religious ceremonies they employ words that are older than the Sanskrit, and that are said to be derived from a language known as *Akkadian*, originally spoken by the peoples of the countries contiguous to the lower Euphrates.† "This," says Dr. Le Plongeon,‡ "strange as it may appear, presents many affinities with the Maya dialect, which is still the vernacular of the aborigines of Yucatan and other countries south of the Peninsula." Valmiki, in the *Ramâyanâ*, tells us colonists from Mayax in very remote ages settled in the Orient; it is well known there were Magi in Babylon at the time of Daniel, people possessed of special learning, speaking a strange tongue, and deeply versed in the art of prophesying, explaining dreams and prodigies, and the omens derived from the entrails of victims offered as sacrifices; and elsewhere it has been shown that *Ma-gi* and *Ma-yi* are cognate if not identical words.§ We also know the apartment in the temples sacred to the higher initiations, whether in Mayax, India, Egypt, Arabia, Chaldea, or Judea, had the form of a rectangle,‖ the form preserved for temples of worship to this day. A rectangle in the hieratic alphabet of Egypt and Mayax—and so in the ancient Chinese—is the letter M, pronounced *Ma*, a word that means not only *first*, but *place*, *country*, and by extension the *Universe*.¶ The *Mystai* adopted it, not, as has been suggested, because they believed the earth to be square or oblong, for they well understood its sphericity, but as the sign of the word *Ma*, which conveyed to their minds the precise idea that is expressed by our word *Earth*.

Undoubtedly Osiris, Horus, Isis, Apollo, Saturn, Vulcan, Mercury, Mars, and the host of other pagan deities appearing in different countries under different names, were originally real personages admitted to the Higher Mysteries, the same as Menu, Hercules, Chiron, Esculapius, etc. The history whence we derive our information is esoteric by the confessions of its authors. Allegory was the language of the Mysteries, of the books, of the

* It is a physiological fact that the first (voluntary, at least) sexual congress leaves the impress of the male upon all subsequent offspring of the female.

† THERAPEUTIC GAZETTE, August, 1887, p. 541: latter part of Appendix N; also foot-note on page 534.

‡ Sacred Mysteries of Mayax, p. 33.

§ THERAPEUTIC GAZETTE, August, 1887, p. 530.

‖ Exodus xvii. 18.

¶ Modern Masonry derives its word *lodge* from the Sanskrit *logia*, "Universe." This is why the lodges of M.·. possess their present form.

priesthood, of the founder of Christianity; it was employed by the Prophets and the Oracles; it is the language of the Orient to this hour, and is markedly assertive in the speech of all barbarians and primitives. It is a form of poesy, and poetic license, permissible in all ages, made more obscure by philological changes accruing to Time. There is nothing strange in the fact that the lines of Homer as handed down to us lack the fire and deep meaning of the period at which they were composed. Even older are the Psalms of David, and other Hebrew poets. The Vedic hymns are yet all but sealed books to the ablest scholars. The poems of Ossian, and Norse *sâgas* recording historical incidents, are so interwoven with allegory as to meet little sympathy or favor save from a few, so little that they are often stamped as fables! Think, then, upon the difficulty of obtaining the true meaning of ancient words, doubly handicapped by esotericism and the subtleties of languages that are now obsolete; and remember also the dialect of the Canadian *Habitan*, which represents the Galic speech of only two centuries agone, is practically unrecognizable by the modern Parisian.

Science in every age and era demands support, hence in all times tithes and offerings have been required as a tribute from ignorance to knowledge; hence the system of sacrifices whereby the vulgar were accustomed to reward the erudite for instruction received, —instruction that was rendered in proportion to their capacity to receive and comprehend. If that instruction was esoteric, or exoterically rendered esotericism, it at least had the merit of corresponding to the law of demand and supply, exactly as the modern clergyman is retained or dismissed from his pulpit accordingly as his labors meet the pleasure of his parishioners. From tithes and offerings the transition to amulets, especially among the more vulgar, was simple; and even amulets are not without value from a psycho-physiological stand-point, oftentimes. So, too, the therapy of the modern medical man is often, more often than is commonly surmised even by the prescriber, psychical and consequently amuletical, and that, too, in spite of supposed direct application and action. But is therapy to be abandoned because it is a source of frequent error? Who has not discovered that the same drug, in like doses, in palatable form was practically inert with certain individuals, but speedily asserted itself when administered in all its crude nauseousness? In all the masses of error there must still be an element of truth hidden, else the error could not exist. Causes give rise to effects, yet a combination of effects may also tend to modify the cause. Physiologically and inherently we are all superstitious and affected by superstitions, only in varying degrees. We all seek to fathom the secrets of nature, yet stand in awe thereof. "Too great familiarity breeds contempt," hence from a sociological view it is well we cannot all grasp the same idea alike, and that the one great secret of life, term it perfection, future unity, or what you will, is in some measure esoteric.

Unfortunately, as we delve among the musty and forgotten records of the Past, our mental vision is dimmed and warped by association with the present, sometimes even obliterated. We see merely that our civilization is a survival and a reculture of the forgotten. The little that comes to us of the realities of the Mysteries is far from being clear, since it is impossible to separate it from modern superstition. Medicine, in some of its branches at least, has been equally if not further advanced than in our own decade. Turning to the "Flowery Kingdom," a country whose literature and history have been so little explored as to be practically unknown, we discover among the occasional liftings of the veil of obscurity the fragments of intellectual monuments of stupendous grandeur, no way behind those of Mayax, India, and Egypt.

There are abundant reasons for surmising the Celestials were anciently possessed of greater knowledge of physical, mental, and medical sciences, including pathology, than at any period of their history familiar to our civilization. Thirty-one centuries before the Christian era the emperor Chen-nong was the author of an extensive treatise that embraced Therapeutics, Materia Medica, Pharmacy, Anatomy, Physiology, Histology, and Biology. In this work remedies were classified according to their action and properties, and in accordance with a primary division into pyretics, antipyretics, and febrile neutrals. The same distinguished author is also said to have discovered the counterpoise of the earth, which by some is supposed to have reference to the action of gravity.* Four centuries later, in the reign of Hoangti, sometimes denominated the "Yellow Emperor," the phenomenon of the circulation of the blood attracted the attention of the learned, becoming a subject of exhaustive investigation

* Probably this is esoteric, and refers to certain doctrines of the Mysteries.

and experiment, carried on in part by the aid of condemned criminals, and partly by researches in comparative physiology. The results are to be found in the surviving remnants of the *Soo-Wan*, or "Disquisitions upon Health and Disease." The John Hunters of this era appear to have been the emperor himself,* and three members of the Imperial household, designated as Ky-pe, Yen-fou, and Ley-king, and it is affirmed that science was in such an advanced stage of perfection that "the remedy requisite to the relief of every ill and condition of humanity was known, and men lived out their allotted days in consonance with the intent of Nature."

From 2207 to 248 B.C., a period embracing the *Hya*, *Shang*, and *Chen* dynasties, a vast number of medical works were published, some of which, or fragments thereof, are still extant, and religiously preserved among the archives of the Chinese Empire. One of these fragments, known as *Nan-king*, and accredited to the eleventh century, B.C., is frequently cited as being a most complete compend of the opinions, practice, and prescriptions of the most eminent authors of this and preceding ages, the information embodied being further enhanced by succinct and definitely arranged psychical, physiological, and pathological annotations. Voluminous publications devoted to Therapy and Jurisprudence also characterized this period, and in certain departments of medical law, the Celestial physicians, as they do to-day, enjoyed an exalted reputation. "Among other instances of superiority in this respect," remarks Surgeon Gordon,† "to which, with or without reason, they pretend, is the method by which they affect to discover whether a man found dead by strangulation had been his own executioner, or been strangled by others; whether, in the case of a body being found in the water, death preceded, or followed, the immersion; and whether in other cases death had been the result of natural causes, or felonious violence."

According to generally conceived and accepted opinion, smallpox first made its appearance in the Orient somewhere about A.D. 317–420, but a comparatively recently discovered work entitled *Taou-tchin-fu*, a copy of which is in possession of the British Museum, speaks of it definitely and specifically, as known to the Chinese at least twelve centuries prior to the Christian era; and presumably it is of much greater antiquity, but confused with other epidemics because of the term translated *plague* or *leprosy*, which was indiscriminately applied to all infectious and contagious maladies. Inoculation was a common practice in the earlier years of the *Chow* dynasty, somewhere about 1122 B.C. Yet the Celestials, then and now, placed less confidence therein than do Caucasians in vaccination at the present day;‡ they assert that not only is the inoculation of variola virus oftentimes a failure so far as procuring immunity to subsequent attacks of the malady, but that the natural process of infection is equally untrustworthy,§—a fact that modern pathologists have been very reluctant to acknowledge.

Nearly four thousand years since, Chinese physicians definitely and correctly described Asiatic cholera, along with its pathological lesions, employing the same name as that which at present accrues to the malady in the Flowery Kingdom,—viz., *hwo-luan*. Also characteristic descriptions of intermittent and remittent fevers, the former accurately and minutely portrayed in works of at least six centuries' greater antiquity. Tuberculosis—*phthisis*—likewise was taught as an acute infectious disorder, the disease being conveyed by means of a minute "worm" found in the pulmonary exhalations of the patient. Evidently the *bacillus tuberculi* is not of modern origin. Crises in disease, and the natural tendency of the economy to relieve itself by

* This emperor is supposed by some to have been the Esculapius of the Greeks.

† "History of Medicine and Medical Opinion."

‡ Hamilton's "History of Medicine," vol. i. p. 30.

§ Inoculation, as practised in the Orient,—the Indias, China, and the Levant,—was formerly doubtless well understood in all its pathological relations. It is now generally alluded to under the somewhat poetical expression of "cultivating Heaven's flowers," but manifestly invoked more as a *fetich* to conciliate the demon of the disorder, for other materials than variola virus are often added. The allusion, however, implies in former times the object was really "the development of a natural disease, the poison of which is latent in the system, exactly as fire is concealed in the flint" (Hamilton). If this be a true interpretation, the inference is that with the decadence of scientific knowledge the real object of the operation has been forgotten; there remains only an esotericism, and *prevention* has usurped the place of *cultivation*. Such particulars have a most important bearing upon the general system of "inoculation" for various diseases as now practised. They indicate, moreover, the importance of research in works referring to times past; and they point to similar results from the new system of "inoculation" as those which characterized the old. ("History of Medicine and Medical Opinion," by Surgeon-General Charles A. Gordon, M.D., C.B.)

spontaneous or critical evacuations at certain periods, were eulogized at the time of Ho-angti; and those suffering from febrile disorders were observed to exhibit marked change every seventh day.

"There are six sorts of distempers," wrote Chun-yu-y. "The first of the presumptive or haughty; the second of the covetous; the third of the poor; the fourth of those who have the *yin* and the *yang* inharmonious; the fifth those who from weakness are unable to accept remedies; the sixth those who credit impostors." And again, "Regard must be had to the age and constitution of the patient,—to his constitution, whether of plethora or inanition. It is necessary, likewise, to inquire into the various degrees of toxicity of poisonous remedies. . . . In short, we must not obstinately adhere to the letter of a rule on all occasions, but vary as circumstances may require."

Says Dr. Gordon, "Vital heat and radical moisture by the ancient Chinese medical writers constituted the two natural principles of life, of which the *blood* and the *spirits* are the vehicles. According to their physiology the body, with its *nerves*, *muscles*, *veins*, and *arteries*, resembled a stringed instrument, whose various parts have each its proper temperament or tone, suited to its particular conformation, situation, and uses. In the same manner as the string gives a different sound according to where it is touched, or the force employed, so, too, the *strings* of the body reveal whether they are too much *stretched* or *relaxed*. Herein we meet with the original ideas which at a date long subsequent were to assume a Western garb, and under such garb have their influence in medical science even down to our own day. For example, the idea of 'the spirits' and the blood being independent of each other, though united in life. . . . The theory of 'localization of function,' although discussed as a subject altogether new, is but shown in its proportions as compared with the corresponding theory expressed by the learned men of ancient China. Here, also, we find anticipated the doctrine of *strictum* and *laxum* to be long subsequently enunciated by 'classical' teachers, and brought down to the present day, for do we not still prescribe for 'nerves too highly strung,' and for 'systems relaxed' order 'bracing' air and tonics?"*

During the *Chow* dynasty, 1122 B.C., maladies were classified in accordance with their prevalence at particular seasons of the year: headaches and neuralgias under *spring;* skin-affections under *summer;* fevers and agues under *autumn;* bronchial and pulmonary affections under *winter*,—a classification that in the main holds good in our own time. Great stress also was laid upon the value of the pulse as a factor in diagnosis, and in this modern Celestial physicians are remarkably clever, and they count twenty-four different styles of beats, besides various subdivisions. In the *Wang-Shua-ho*, issued about 500 B.C., occurs a special treatise entitled "The Doctrine of the Pulse," which refers to a still more ancient work devoted to the same subject, and it declares, "There are in the pulse a thousand differences, according to differences of age, sex, stature, and seasons."

In the sixth century B.C., *Cheu-kwei*, a celebrated surgeon, flourished, and so skilful in his art, that he is said to have "cut open the abdomen, removed diseased viscera, and neatly sewed it up again without the patient having suffered anything." Here we have evidence of early employment of anæsthetics, which, both general and local, were known to India much earlier. An operation, surmised to have been an ovariotomy, is also referred to the second century B.C., and at the same time it is written: "If the sick man is suffering from some internal complaint, and medicines produce no satisfactory result . . . the surgeon now takes a sharp knife, and opens the abdomen, proceeding to wash the viscera with medicinal liquids, but without causing him the slightest pain.† The washing finished, he sews up the wound with *medicated* thread, puts over it a plaster, and at the end of twenty days or a month the place is healed up!"

We also read that *Hwa-to* in the third century B.C. enjoyed especial eminence on account of the wonderful cures effected by his skill, and that he met his death by decapitation for refusing to *trepan* a famous military despot. From this time medicine steadily declined in the Flowery Kingdom, and some-

* History of Medicine and Medical Opinion, p. 228.

† We are necessarily involved in doubt as to the character of the anæsthesia produced. Now and then the employment of *hascish* is alluded to; we know local anæsthesia has been a Chinese practice for centuries,—or it may have been hypnotism. In many instances hypnotism is specified, the manipulators and operators on several occasions being women. General Gordon notes that the juice of monk's-hood (aconite) is employed to procure local anæsthesia, also several species of fungi, and an exudation procured from frogs and other reptiles. Also that the doctrine of "blood-poisoning" meets with general favor, to the manifest advantage of nostrum venders and charlatans, who on every hand vaunt the virtues of "blood-purifiers."

where between B.C. 238 and 210, during the reign of Chi-Hoang-Ti of the vandal *Tsin* dynasty, the greater part of Chinese literature was destroyed, save works devoted to architecture and astronomy. Formerly with high claims for consideration, and notably superior to that of the Greeks, Chinese medicine has now so degenerated as to present a strange jumble of fetichism, astrology, and superstition, with here and there a few really valuable observations.

Lamaism possesses a voluminous literature, sacred, philosophical, scientific, theological, psychic, and historical, in all several hundreds of volumes classified as *Bkah-hgyur*, *Bstan-hgyur* (derived from India as supposed), and *Mani-Kambum* (of local origin). The first is made up of books of discipline, philosophy, metaphysics, doctrines, Buddhistical transmigrations, incarnations, and the *Sutras*,—"collections of precious things," "liberations from pain," and "incantations." Between two and three hundred volumes are enumerated in the *Bstan-hgyur*, some few poetical and epical, some devoted to dogmas, but the greater part devoted to philology, medicine, therapeutics, physiology, psychology, and natural science. The *Mani-Kambum* contains the legends of the propagation of Buddhism, a description of the *Sukhavati*, or region of *perfected bliss*, ethics and religious ordinances, dissertations upon the mystical sentence *Kum om Padma* (Maya, *Con-exomon pan-ex*), including its "meaning, irresistible power," etc. As may be imagined, all are esoteric and mystical, and but little known outside of the sacred monasteries of Lhassa and Pekin. The three grades of priesthood also exhibit a mystical origin. The highest is *Chang-Chhub*, "the Perfected," or "True Intelligence." This may be reached only through the *Chang-Chhub-Sempali*, or "Perfected Strength of Mind,"—the analogue of the Sanskrit *Bodhisatwas* and Chinese *Pusas*. Lastly, the *Pratyeka*, or "Individual Intelligence," whose ranks are recruited from the acolytes or "Listeners,"—*Seavaka*.

In his translations of the cuneiform records of ancient Assyria, Mr. Sayce affords us some further insight into the status of Therapeutics in Nineveh and Babylon. He declares the medical profession to have been in a much more advanced state than the world has generally surmised. All the known diseases were classified, their symptoms described, the medical mixtures considered appropriate to each case being compounded and prescribed in quite the nineteenth century fashion. "Disorders of bile" then, as now, had much to answer for. A prescription given in fever calls for "cypress extract, goat's milk, palm wine, barley, the flesh of the ox or bear, and the wine of the cellarer." In this we see a hot, stimulating, carminative draught not very dissimilar to what is often prescribed in like cases in our own day. Dr. Gordon remarks thereupon, "This method of treatment obtains significance if we refer to certain prescriptions in our own country (Great Britain) as recently as A.D. 1737,—namely, 'Make a decoction of the root of English or Flemish cypress bruised in white wine, and, after it is strained, drink the wine as hot as possible; 'tis an approved remedy for the colic.'" Here is another, of a plant called *cypress Indicus*, but which is more properly *curcuma longa*,—namely, "the fruit is good to eat when it is boiled with meat (the modern *curry*). This *turmeric* is aperient, detersive, proper to relieve obstructions of the spleen," etc.* At the present time, instead of goat's milk and the flesh of the ox or bear, we substitute beef essence with stimulants, including the "wine of the cellarer."

In rules laid down for arriving at a correct diagnosis, the Assyrian physician was enjoined to "observe the sick man's countenance. If it shows a white appearance, his heart is cured; if it shows a dark appearance, his heart is still devoured by fever; if it shows a yellow appearance during the day, the patient's recovery is assured; if it shows a black appearance, he will grow worse, and will not live."†

APPENDIX.

O.

"Among the upper classes of citizens there was one . . . who . . . bore the Greek name Nicodemus, and was a ruler, a foremost man, in the religious world of Jerusalem, a member of its governing class, and in sentiment and party a Pharisee. . . . He was a man of advanced years and high position, and might, no doubt, have done good service to Christ's worldly interests among the influential classes, and have even helped toward a coalition of the priests and Pharisees with Him, had his aim been national and religio-political like theirs. There was, inevitably, a strong prejudice in Jerusalem against a movement which had begun in Galilee, and was supported by Galilæans, and Nicodemus might have helped to counteract it. . . .

"As a *Rabbi*, Nicodemus was necessarily skilled in the subtle expositions of the Law for which his order was famous, and must have been familiar with the Scriptures throughout, but he had been trained to the *artificial* (*i.e.*, esoteric) explanations of the Schools, and *was profoundly unconscious of their deeper meaning.*

* Pomet, p. 35.

† *Vide* Chas. A. Gordon.

Like others, he supposed that a Messiah would set up a theocracy distinguished by zealous fulfilment of the Law; every Israelite, as such, forming a member of it. Greeting Jesus as one whom he and others in his position acknowledge to be a 'Master' (one of the *Mystai*) . . . any question as to his own admission to the kingdom (Perfection) had not crossed his mind. . . . Israel as such would be saved (Perfected) . . . God had sanctified Israel to Himself forever, and made every Jew as such, on a footing. . . . Trusting implicitly in his being a Jew as a divine title to citizenship in the new theocracy, and thinking only of formal acts by which he might show his devotion and increase his claim to the favor of God, here and hereafter, he is met by an announcement that neither national descent nor the utmost exactness of Pharisaic observance, nor any good works however great, as such, availed at all to secure entrance into the kingdom. . . . Jesus broadly told him that his whole conceptions were fundamentally wrong. Every man, whatever his legal standing, must be *born again* if he would *see* the kingdom of God. To do so is not a question of acts, legal or moral, but of their motive. The idea of being born again should not have been incomprehensible to a Jewish *Rabbi*, for . . . '*creating a clean heart* and *renewing a right spirit*' are expressions that must have been familiar to him in the Law, and the Prophets, and the Psalms. But the full meaning of such terms had been lost in the prevailing externalisms (esotericisms). He took the words in their literal sense. In his perplexity he supposed that what was demanded was in some way connected with his nationality, which he assumed already opened an unquestioned entrance for him into the theocracy." (Geikie's "Life of Christ," chap. xxx.)

P.

Such an illustration shows how trivial an impression may be recorded and preserved; and if, on such an inorganic surface, an impression may thus be indelibly marked, how much more likely in the purposely constructed ganglion! A shadow never falls upon a wall without leaving thereupon a permanent trace,—a trace which might be rendered visible by resorting to proper processes.

Dr. Draper, commenting upon such fact, adds, "Photographic operations are cases in point. The portraits of our friends, or landscape views, may be hidden on the sensitive surface from the eye, but they are ready to make their appearance as soon as the proper developers are resorted to. A spectre is concealed on a silver or glassy surface until, by our necromancy, we make it come forth into the visible world. Upon the walls of our most private apartments, where we think the eye of intrusion is altogether shut out and our retirement never profaned, there exist the vestiges of all our acts, silhouettes of whatever we have done.

"If, after the eyelids have been closed for some time, as when we first awake in the morning, we suddenly and steadfastly gaze at a brightly-illuminated object and then quickly close the lids again, a phantom image is perceived in the indefinite darkness beyond us. We may satisfy ourselves that this is not a fiction, but a reality, for many details we had not time to identify in the momentary glance may be contemplated at our leisure in the phantom. We may thus make out the pattern of such an object as a lace curtain hanging in the window, or the branches of a tree beyond. By degrees the image becomes less and less distinct: in a minute or two it has disappeared. It seems to have a tendency to float away in vacancy before us. If we attempt to follow it by moving the eyeball, it suddenly vanishes. Such a duration of the retina proves that the effect of external influences on nerve-vesicles is not necessarily transitory. In this there is a correspondence to the duration, the emergence, the extinction of impression on photographic preparations. Thus I have seen landscapes and architectural views taken in Mexico developed, as artists say, months subsequently in New York, the images coming out after the long voyage, in all their proper forms and in all their proper contrast of light and shade. The photograph had forgotten nothing: it had equally preserved the contour of the everlasting mountain and the passing smoke of the bandit fire.

"Are there then contained in the brain more permanently, as in the retina more transiently, the vestiges of impressions that have been gathered by the sensory organs? Is this the explanation of memory,—the Mind contemplating such pictures of past things and events as have been committed to her custody? In her silent galleries are there hung micrographs of the living and the dead, of scenes that we have visited, of incidents of which we have borne a part? Are these abiding impressions signal-marks, like the letters of a book, which impart ideas to the mind; or are they actual picture-images, inconceivably smaller than those made for us by artists in which, by the aid of a microscope, we can see in a space not bigger than a pin-hole a whole family group at a glance?

"The phantom images of the retina are not perceptible in the light of the day. Those that exist in the sensorium in like manner do not attract our attention so long as the sensory organs are in vigorous operation, and occupied in bringing new impressions in. But when these organs become weary or dull, or when we experience hours of great anxiety, or are in twilight reveries, or are asleep, the latent apparitions have their vividness increased by the contrast, and obtrude themselves upon the mind. For the same reason they occupy us in the delirium of fevers, and doubtless also in the solemn moments of death. During a third part of our life, in sleep, we are withdrawn from external influences: hearing and sight and the other senses are inactive, but the never-sleeping Mind, that pensive, that veiled enchantress, in her mysterious retirement, looks over the ambrotypes she has collected,—ambrotypes, for they are truly unfading impressions,—and, combining them together, as they chance to occur, constructs from them the panorama of a dream. Nature has thus implanted in the organization of every man means which impressively suggest to him the immortality of the soul and a future life. Even the benighted savage thus sees in his visions the fading form of landscapes, which are, perhaps, connected with some of his most pleasant recollections; and what other conclusion can we possibly extract from those unreal pictures than that they are the foreshadowings of another land beyond that in which his lot is cast? At intervals he is visited in his dreams by the resemblances of those whom he has loved or hated while they were alive; and these manifestations are to him incontrovertible proofs of the existence and immortality of the soul. In our most refined social conditions we are never able to shake off the impressions of these occurrences, and are perpetually drawing from them the same conclusions our uncivilized ancestors did. Our more elevated condition of life in no respect relieves us from the inevitable operation of our own organiza-

tion, any more than it relieves us from infirmities and disease. In these respects, all over the globe, men are on an equality! Savage or civilized, we carry within us a mechanism which presents us with mementos of the most solemn facts with which we can be concerned. It wants only a moment of repose or sickness, when the influence of external things is diminished, to come into full play, and these are precisely the moments when we are best prepared for the truths it is going to suggest. That mechanism is no respecter of persons. It neither permits the haughtiest to be free from the monitions, nor leaves the humblest without the consolation of the knowledge of another life. Open to no opportunities of being tampered with by the designing or interested, requiring no extraneous human agency for its effect, but always present with every man wherever he may go, it marvellously extracts from vestiges of the impressions of the past, overwhelming proofs of the realities of the future, and, gathering its power from what would seem to be the most unlikely source, it insensibly leads us, no matter who or where we may be, to a profound belief in the immortal and imperishable, from phantoms which have scarcely made their appearance before they are ready to vanish away." (Abstract of views presented by Dr. Draper in his work on "Human Physiology," and in the chapters devoted to "Inverse Vision or Cerebral Sight.")

"The only path to scientific human psychology," the author further remarks, "is through comparative psychology." It is a long and wearisome path, but it leads to Truth. Is there, then, a vast spiritual existence pervading the universe, even as there is a vast existence of matter pervading it,—a spirit which, as Kant tells us, sleeps in the stone, dreams in the animal, awakens in man? Does the soul arise from the one as the body arises from the other? Do they in like manner return, each to the source from which it has come? If so, we can interpret human existence, and our ideas may still be in unison with scientific truth, and in accord with our conception of the stability of the unchangeability of the Universe. (See "Conflict of Science," p. 138.)

Q.

Evil Spirits.—In connection with the doctrine of Evil Spirits, let me call attention to an article appearing in the *Galaxy* of January, 1885. Here is given the character of Mr. Home, widely known as the "Great Apostle of Modern Spiritism," but he confesses himself a firm believer in Christianity.

"Mr. Home declares that belief in spiritualism is by no means a religious belief, and has nothing to do with man's religious faith. . . . He says they (the spirits) are not allowed to teach us . . . because we would depend too much on them. . . . An old gentleman . . . asked, 'Mr. Home, do you believe that Jesus Christ died for sinners, and that by faith in him alone we are to be saved?' 'I do, sir!' he answered. . . . 'Well, I've heard a great many spiritualists talk, but I never yet saw one that acknowledged . . . the Saviour.' . . . 'Then look at me,' emphatically answered Mr. Home. He does not pretend to explain this power of mediumship; it is like the gift of a fine voice or a talent for painting. . . . The science of spiritual manifestation is subject to certain natural laws as yet not understood. Much depends upon the atmosphere. . . . Mr. Home charges those who would investigate the subject to exercise the greatest care in the choice of a medium. He says every human being attracts to him or herself . . . sympathetic companions; that we are invisibly surrounded by those who are like ourselves, and mediums therefore are under the influence of those who are drawn to them by likeness of character. In this way he accounts for the much injury done spiritualism through the communications of lying spirits, and the immoral social influence of many mediums."

It is needless to remark, perhaps, that Mr. Home is wholly unfamiliar with the doctrines of the Mysteries.

Experimental Science.—For more complete information regarding the researches of Messrs. Crookes, Wallace, Hallet, and others, I refer my readers to the Transactions of the (English) *Society for Psychical Research*.

Mystical Origin of Judaism.—In the xxiv. chapter of Exodus, the 9th, 10th, and 11th verses compose a paragraph which reads as follows:

"Then went up Moses, and Aaron, Nadab, and Abihu, and seventy of the elders of Israel: and they saw the God of Israel: and there was under his feet as it were a paved work of sapphire stone, and as it were the body of heaven in clearness. And upon the nobles of the children of Israel he laid not his hand: also they served God, and did eat and drink."

See also Isaiah vi. 1–5; 1 Timothy vi. 16; Exodus xxiv. 17; Ezekiel i. 26–28; do. x. 1–22; Revelation iv. 2–6; Deuteronomy iv. 33; and compare these with the extracts from the Book of Enoch (Therapeutic Gazette, August, 1887, p. 541. Appendix N), the Popal-Vuh, Books of Daniel, etc.; and likewise with the statement of Proclus, the philosopher and disciple of Plato: "In all initiations and mysteries the gods exhibit themselves under many forms, and appear in a variety of shapes. Sometimes their unfigured light is held forth to view; sometimes this light appears under a human form, and sometimes it assumes a different shape."

We are told regarding the Mysteries of Eleusis that to those who *failed* in the ordeals by which was reached the second degree, that of *Ephori*, were administered powerful narcotic drugs that "plunged them into a death-like sleep, from which they emerged with confused recollections, if not in entire forgetfulness of the terrible scenes they had witnessed, and which they believed to be produced by some frightful dream or dreadful nightmare." Again, that all the human mind can imagine that would excite the passions, were placed within the grasp of the candidate for *Epopteia* (the highest degree). Nothing that could possibly entice from a state of moral and physical purity was omitted. But if in a moment of weakness they allowed their senses to obtain the mastery over reason, their bright surroundings suddenly disappeared, and they were plunged into the most dense obscurity; they were precipitated into a deep abyss, from which if they escaped with life it was at the expense of reason.

Port Huron, Michigan.

ANTIPYRETIC PILLS.

By B. Frank Humphreys, M.D., Hawkins, Texas.

THE occasional untoward effects of antifebrin, antipyrin, and the whole catalogue of "anti-quinine" rivals, and the alleged pathological changes which have been ob-

served to follow their administration, have made many practitioners more cautious in the use of these new remedies, and more inclined to fall back upon the old and less dangerous methods. The following formulæ have been devised and used with satisfactory results by the writer before the more recent antipyretics came into general use. If some of the manufacturing pharmacists will include them in their formula lists, they will doubtless find ready sale for them, as few physicians or druggists are in a position to prepare them properly. Distant patrons, who are familiar with their use, send to me for my "fever pills," and manage most of their malarial sickness with success. No. 1 is especially adapted to general family use, meeting the indications in ordinary cases of malarial fever.

The other numbers, as a general rule, should be preceded by, or alternated with, calomel. The two- or three-grain sugar-coated pill, to the amount of six or ten grains, followed by a saline laxative, is the most efficient hepatic remedy.

These antipyretic pills, as the term indicates, are designed to reduce the fever, and may be given in any stage of the pyrexia. They act not only as an antipyretic, but at the same time prove to be our most reliable antiperiodic. The fever usually subsides, if of the periodic type, by the time the patient becomes thoroughly cinchonized, diaphoresis being established after a few doses, followed by a gradual decline of the temperature.

NO. 1.

℞ Quinine, gr. ii;
Calomel, gr. i;
Antim. et pot. tart., gr. ¼;
Morphine sulph., gr. ⅛. M.
Fiat P. 1.

Sig.—One or two pills every two hours until the fever subsides, or until ten pills have been administered. Usually one pill every two hours is sufficient. In urgent cases one or two pills every hour may be required.

NO. 2.

℞ Quinine, gr. ii;
Ipecac, pv., gr. ½;
Camphor, pv., gr. ½;
Gelsemine, gr. ¼. M.
Fiat P. 1.

Dose same as the preceding formula.

NO. 3.

℞ Quinine, gr. ii;
Ipecac, pv., gr. ½;
Camphor, pv., gr. ½;
Pilocarpine, gr. ⅛. M.
Fiat P. 1.

Dose same as first formula.

NO. 4.

℞ Quinine, gr. ii;
Opium, pv., gr. ¼;
Ipecac, pv., gr. ½;
Ext. aconite, gr. ⅛. M.
Ft. P. 1.

Dose same as first formula. The drugs should be strictly pure and accurately divided.

These pills are not designed to take the place of a physician's prescription, nor are they intended to be used throughout an attack of fever when other and special treatment is obtainable. They may be conveniently used at the onset of a malarial fever, or at any time during its progress, to establish diaphoresis and hasten the apyrexia, after which the treatment indicated may be prescribed.

ANDROMEDOTOXIN.

DE ZAAYER has prepared considerable quantities of andromedotoxin from *Rhododendron ponticum*, and gives its properties as follows (*Chem. Zeit.*): It is in white, delicate, crystalline needles, melts at 228° or 229° C., soluble in alcohol, amylic alcohol, chloroform, ether, and benzol, and less soluble in hot than in cold water. The solutions in water, alcohol, and amylic alcohol are lævogyre, while a solution in chloroform is dextrogyre. It yields alkaline solutions, is not precipitated by the alkaloidal reagents, nor by solutions of metallic salts; it does not reduce Fehling's solution. When heated with dilute sulphuric, hydrochloric, or phosphoric acid it assumes a beautiful rose color, the shade varying somewhat with the acid used. $C_{31}H_{51}O_{10}$ is the formula assigned to it.—*Druggists Circular and Chemical Gazette*, October, 1887.

CRYPTOCARYA AUSTRALIS.

The physiological action of *Cryptocarya australis* has lately been investigated by Dr. Bancroft, of Brisbane. This small tree belongs to the natural order of Laurineæ, and is plentiful about Brisbane. The bark has a persistently bitter taste, due to the presence of an alkaloid which crystallizes from its solution in stellate masses of acicular crystals. When administered to warm-blooded animals the alkaloid produced difficulty of respiration, ending in asphyxial difficulty and death. It also had a poisonous action on cold-blooded animals belonging to the reptilia.—*Pharmaceutical Journal and Transactions*, October 1, 1887.

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Leading Articles.

MALARIAL ORGANISMS.

AT a meeting of the Pathological Society of Philadelphia, held October 27, Dr. Councilman, of the Johns Hopkins University, read a very interesting account of researches made during the present season upon malarial blood. He found in greater or less abundance the whole series of organisms which have been described by various observers as existing in the blood of malarial patients. The segmental organism which Professor Osler, of this city, first stated to be peculiar to the period just before or during the chill he found in a large number of cases always at this period, and believes it to be a characteristic of the stage. The crescentic organism he found solely in malarial cachexia, in which affection, when intense, it often exists in extraordinary abundance. Dr. Councilman found no difficulty in obtaining blood directly from the spleen with a hypodermic syringe. He always took the precaution to throw the whole syringe into boiling water before using it, and never saw any evil results follow the plunging of the sterilized syringe-needle deep into the splenic tissue. The blood of the spleen was found to be especially the home of the various organisms, and it was chiefly from it that the flagellated form of the organism was obtained.

The effect of the administration of quinine upon these organisms was carefully studied. The influence of large doses of the alkaloid upon the most characteristic organism—namely, that which accompanies the acute intermittent and is characteristic of the chill period—was most pronounced. Fifteen grains of quinine given daily for three or four days would often be followed by the almost complete disappearance of the organism, and whilst the administration of 45 grains daily for three days always caused the organism to disappear completely. On the other hand, the crescentic organism of the malarial cachexia did not appear to be particularly affected by quinine. Thus in one case 45 grains a day of the alkaloid were given for six successive days, and then 60 grains a day for three successive days, but at the end the crescents were about as numerous in the blood as they had been before any drug was given. Dr. Councilman has made a limited number of transfusions of malarial blood into the blood of a rabbit, and has repeatedly found the organisms in the blood of one ear a few moments after malarial blood had been injected into the other ear. In a number of cases the crescentic organism was found to be embedded in one of the white blood-corpuscles, and apparently white blood-corpuscles in a manner seize the foreign organism and destroy it.

During the discussion of this paper Dr. Osler made a statement that a Canadian medical friend insists that the wild geese coming southward to the malarial flats of Southern Canada frequently suffer from malarial fever, and that he himself examining the blood of one of these geese had found one or two organisms which he could not distinguish from those of the malarial human blood.

Dr. Councilman's researches undoubtedly strengthen the theory that the organisms in the blood are the cause of malarial fever, although it cannot be considered that this theory is proven. As therapeutists we are especially interested in the effect of quinine upon these organisms. The relations between the chill organisms and the crescents are extremely obscure, no observer having as yet traced any intermediate state. Arsenic was found by Dr. Councilman to be without apparent influence upon the crescents. Now, if the crescents are the cause of malarial cachexia, why is it that

they are not influenced by quinine and arsenic, although these agents will cure chronic as well as acute malaria? No satisfactory answer was given by Dr. Councilman, or, indeed, can at present be given to this inquiry.

MAMMARY ELIMINATION.

THE question of elimination of drugs from the mammary glands of the female is one of practical interest. Our own experience leads us to believe that only in very rare instances do medicinal substances find their way into the mother's milk in sufficient quantities to affect the offspring. This conclusion is measurably confirmed in a paper recently published in the *American Practitioner*. Dr. John G. Cecil there concludes that it is practically impossible to medicate the child through the nurse's milk; on the other hand, he advances evidence to show that certain narcotics, and even other substances, may sometimes find their way into the lacteal fluid in sufficient quantities to produce acute poisoning in the child. Every one knows that the oil of garlic will in the spring appear in cow's milk in sufficient quantity to be disagreeably recognized. Among the cases cited by Dr. Cecil several seem to us worthy of especial note.

Opium.—In the *American Journal of Obstetrics*, June, 1885, is reported by Dr. O. W. Doe a case of galactorrhœa in which, the patient being restless and nervous, 20 drops of tr. aceti opii, with 30 grains of potas. brom., were given at 10 A.M., but no sleep followed. The baby, on the contrary, could not be roused during the whole day sufficiently to nurse; the pupils were markedly contracted, and the narcotism was so pronounced as to give rise to much anxiety. According to Dr. Cecil, an infant two days old, in Manchester, England, died soon after taking the mother's breast for the first time. The symptoms were said to have been those of opium-poisoning. The mother was a habitual opium-eater, using weekly about an ounce of the drug. A similar case was reported in *Annales de Gynecologie* for August, 1876. Those of our readers who have noted in our review of Dr. Erlenmeyer's book the statement that infants born of opium-eaters are very liable to sudden collapse after birth for want of opium, will agree with us in thinking it possible that in the two cases just cited the children died from lack of opium rather than from opium-poisoning. Dr. Fehling found that hypodermic injections of morphine given to the mother do not affect the child. The explanation of opium-collapse cannot, however, apply to a case reported by Dr. Cecil himself, in which the child was six weeks old.

Atropine.—Dr. Schling reports in the *Journal de Médecine*, February 20, 1887, some experiments with the alkaloid of belladonna. Hypodermic injections of $\frac{1}{15}$ to $\frac{1}{20}$ of a grain of atropine produced a decided impression on the mother. Dilatation of the child's pupils followed, which disappeared in twenty-four hours. Dr. Ouchterlony gave to Dr. Cecil the record of a case in which, after the administration of hyoscyamus to the mother, the child's pupils became widely dilated and its face flushed, and other symptoms of poisoning appeared, which subsided upon the withdrawal of the remedy.

Salicylate of Sodium has been found by Fehling and Schling in the child's urine about one hour after its administration to the mother. *Mercury* was at one time frequently administered to the mother for the purpose of affecting the child, but the practice has gone into desuetude. Conjoined clinical and experimental evidence seems to show that although the mercury does pass from the mammary glands occasionally, its elimination is too feeble and too uncertain to be relied upon. There is reason for believing that the *iodides* are more frequently eliminated with the milk, and Dr. Cecil records a case of marked iodism in the babe following the exhibition of the drug to the mother.

Arsenic and *antimony* appear to pass with some readiness through the mammary glands. (See *Journal of the American Medical Association*, September 12, 1885.) M. Gabriel Bouchet, to determine whether *arsenic* is eliminated by the milk, gave Fowler's solution in large doses to a number of wet-nurses, and found a notable quantity of the metal in the milk. Lewald states that he has found arsenic in the milk seventeen hours after its ingestion, and that even forty hours later the metal could be detected.

QUARANTINE AGAINST CHOLERA.

AT a discussion in the College of Physicians, held on October 27, the special committee that had been appointed to examine the condition of the quarantine at New York, Philadelphia, and Baltimore made a long and very able report upon the subject. This report revealed a condition of affairs

most extraordinary, and which, unless remedied, must before long lead to an outbreak of cholera that will probably spread throughout the whole United States. When it is remembered that there are in this country fifty millions of people, who are continually travelling to and fro, that many of our cities are filthy, and that cholera is a disease that spreads with extreme and uncontrollable rapidity, the importance of the subject becomes apparent. A personal careful investigation by the committee showed that in neither of the cities was there proper provision for the prevention of the ingress of the disease. The details of this report will, without doubt, be printed in most newspapers of the United States before the THERAPEUTIC GAZETTE can get to press, and we do not therefore occupy space with them, but content ourselves with calling attention to certain potent facts.

In the first place, the treatment of the passengers of the affected ships in New York harbor seems to have been simply abominable. Hundreds of men and women, some infected, others not, were for several days crowded in a single large room. They had, at least at first, no bedding at all, and when bedding was received it was simply thrown upon the floor, and during the day piled up in heaps, no care being exercised to see that the same individual had the same blankets on successive nights. There were no proper latrines, no proper protection of the water-supply from infection, and the system of disinfection was so bad that for several days the unfortunate people had no access to any clothes save those on their back. There was no isolation of the groups of passengers, and no attempt at separation of the possibly infected from the well. There was no medical attendance upon the island during the night. Any person taken with cholera at such time had to remain without assistance among the well persons until the visit of the health-officer the next day. Even in the hospital upon an adjacent island, with its ill and dying patients, there was no resident physician, and therefore no proper surveillance of the patients, who apparently were visited only once in twenty-four hours.

In the second place, the police supervision was so faulty as practically scarcely to exist, and there can be no doubt that boats passed freely between the infected island and the shore. If under such circumstances cholera has died out, an old-fashioned coroner's jury sitting upon it would be well justified in bringing in the old-time verdict, "Died by the grace of God."

In the discussion at the College of Physicians which followed the reading of the report of the committee, Dr. J. C. Peters, of New York, made some statements as to the cause of the inefficiency of the New York quarantine. He said that it was due to lack of money, although the receipts of the office are estimated at from sixty to one hundred thousand dollars a year. Of this money ten thousand goes to the medical health-officer, seventeen thousand to the expense of the office, and the remainder, according to Dr. Peters, fades away,—it being generally understood that the quarantine office is the main reliance of one of the political parties in the State of New York for campaign expenses. The question naturally arises, Is it quite proper that the whole United States of America should be exposed to a decimation of its people in order that a political party in New York State may maintain a struggle for supremacy? Perhaps the sacrifice may be worth making for the end, but we have ventured to doubt it.

Probably after the country has been ravaged by cholera the wise men at Washington who rule so unwisely will rise above local jealousies and local feelings and devise a general quarantine law to be enforced by the United States authorities,—a law which if put in operation now might save thousands of lives. New York commerce is of course of importance to New York, but New York is simply one of the gate-ways to the United States, and surely the people of the United States have as much interest in the question of the entrance of contagious disease as have the people of New York themselves. If the United States government have a right to interfere with the commerce of New York, as it does by taxation, it must also have the right to further interfere as far as may be necessary for the protection of the people. Quarantine is not a local, but a general question. The gate-ways to the country are many, and the series of quarantine stations make a chain whose strength is measured by that of its weakest link. A little port upon the Atlantic, powerless from poverty to enforce proper quarantine regulations and to make proper provisions for those who are detained, may become the starting-point for a wave that shall sweep like a besom of destruction over the whole country. Moreover, at present a city is not responsible for its own quarantine and is not able to protect itself. The State of New York, not the city of New

York, dominates the quarantine station at New York, and if such a great Commonwealth, vastly superior in its intelligence and in its wealth to almost any other State of the Union, prefers to steal from its own quarantine stations money for political purposes, what can be expected of a small State like that of North Carolina, with its port of Wilmington, perchance poor, struggling with debt, and really unable to properly protect itself from disease-invasion?

CALOMEL AS A DIURETIC.

THAT various mercurial preparations are capable of acting as powerful diuretics is well known from the observations of Jendrassik, Stiller, Leyden, Fürbringer, Rosenheim, Senator, and others. It seems to be clearly established that calomel under certain circumstances is a most active diuretic, while under other conditions, as the readers of the GAZETTE will remember from articles already published on this subject, failure attends its employment under these indications. The conditions under which the greatest divergence of opinion obtains as to the value of calomel as a diuretic is in the case of hepatic diseases, in which condition authorities may be referred to who claim on the one side positive and on the other entirely negative action. This state of affairs is somewhat simplified by a paper published by Dr. W. P. Meyjes in the *Deutsche Medicinische Wochenschrift* for September 1, 1887. Dr. Meyjes tested the diuretic effects of calomel in fifteen cases in the clinic of Professor Pel. In eight of these cases a positive result was obtained; in the other, the diuretic action was slight or completely negative. His cases fall under the following groups: 1. Degeneration of the heart-muscle; 2. Organic heart-failure, with insufficient compensation; 3. Diseases of the liver; 4. Dropsy from other causes than those referred to. In the first two of these groups Dr. Meyjes's result confirmed other observers, the result being, as a rule, favorable, although he did not succeed in obtaining as striking effects as have been claimed by others. In the group of diseases of the liver his results are strikingly successful, with the exception of a single case of cirrhosis of the liver, where calomel was employed for three days with no evident results. On the other hand, two cases of gall-stone treated by this method are reported, in which a marked diuretic effect was produced, and a reduction of the jaundice and suppression of the attacks of colic. In the fourth group, which includes cases of anæmia resulting from various cachectic conditions, kidney-affections, malarial or spinal disease, in no instance was the use of calomel followed by any improvement. Dr. Meyjes likewise discusses the cause of this production of diuresis by calomel, but with no further success than in attributing to calomel a specific diuretic action.

HYPODERMIC INJECTIONS OF CARBOLIC ACID IN CASES OF RHEUMATISM.

ACCORDING to the Vienna correspondent of the *British Medical Journal*, October 8, 1887, Professor Benedict has been using with extraordinary success hypodermic injections of two per cent. solution of carbolic acid in the treatment of rheumatoid affections. He asserts that in even a few months after the injection into the part the joint will be freely movable and free from pain as though narcotized, and in recent cases joints in which there was great tenderness on pressure and distinct swelling of the bones would be apparently free from disease a few days after the injections; not only would the pain disappear in the joints in whose neighborhood the injections had been practised, but would be markedly lessened in distant joints. Professor Benedict believes that the carbolic acid has not only a local influence, but a general effect in causing the elimination of the rheumatic poison. He has especially obtained good results by the simultaneous use of salicylic and carbolic acids when the salicylate of sodium is administered by the mouth in small doses, and one to three subcutaneous injections of carbolic acid being given in twenty-four hours, the course of the affection was very much accelerated, and no bad consequences were observed, especially if the treatment was carried out from the very beginning of the disease. Extraordinarily good results were obtained by the method in cases of inflammation of the sheaths of tendons, especially after injury. A few injections sufficed to cut short the morbid process, and no local pain or muscular atrophy, etc., was observed, provided the disease was treated in the above-mentioned way from the very outset.

ACETPHENETIDIN, A NEW ANTIPYRETIC.

KOBLER, of the medical clinic of Professor Bamberger in Vienna, describes his observations with this, the latest antipyretic, in the *Centralblatt für die Gesammte Therapie* for August, 1887. The formula for the composition of this substance may be written $C_6H_4NH.O.C_2H_3(CO-CH_3)$, its composition being analogous to that of antifebrin. It is a faintly reddish, odorless, and tasteless powder, very sparingly soluble in water, more soluble in glycerin, most soluble in alcohol, especially when hot. It is insoluble in acids or alkalies, and experiments have shown its insolubility in gastric juice and extract of the pancreas. After the use of the drug with healthy persons, in doses of from 8 to 10 grains, no effect was observed. In healthy persons body temperature was not influenced, while in fever patients, even after doses of 5 or 6 grains, a fall in temperature always occurred. In the writer's first use of the drug, as it was unknown, only small doses were employed,—from 3 to 6 grains; and after such doses a slight fall of temperature, persisting for a short time only, was observed. Doses of 8 grains were given afterwards, and finally it was the custom in the clinic to order 9 or 10 grains, as the doses previously given produced too feeble an effect. No especial idiosyncrasy against the drug was observed. The vomiting and depression so often observed after other antipyretics was never seen. As it is tasteless it was given in wafers, only to convey it better into the intestine. The drug was used in forty-eight cases,—eleven of pulmonary tuberculosis, ten of croupous pneumonia, seven of typhus abdominalis, six of measles, four of puerperal sepsis, three of pleurisy, two of pyæmia, one of a typhoid relapse, one of cerebro-spinal meningitis, one of acute purulent peritonitis, one of parametritis, and one of angina. The patients were generally between twenty and forty years old, one case a child of 9 years, ill with measles, on whom the dose of 3 or 5 grains produced a marked fall of temperature. In this case, as is usual in measles, continual high fever and well-marked bronchitis were present, in addition to the subjective symptoms. In no morbid process could a specific effect upon the disease be observed, but it was equally true that the effect of the drug was not to prolong any disease, as has been observed in the case of some other antipyretics.

Of ten cases of pneumonia treated with acetphenetidin six ended by crisis, and generally on the fifth or sixth day; among these was a case of Bright's disease. The drug was well borne in these cases, as it was also in another case, where, in addition to double pneumonia, acute nephritis was present. The patient was a person aged 20, who, while nursing three children ill with severe diphtheria, contracted a pneumonitis. The case bore the marks of an acute septic infection. As an antipyretic acetphenetidin was given in doses of 10 grains to 24 grains in twenty-four hours, without producing any symptoms of intoxication. The drug was apparently not irritating to the diseased kidney, as the quantity of blood in the urine became steadily less while the drug was taken, while the quantity of albumen contained was not influenced. The patient made a good recovery. The writer used the drug in question in accordance with the usage of Professor Bamberger, viz., to give antipyretics only when the temperature rises so high as to be dangerous to the organism and to its life. This drug, therefore, was given to patients whose temperature was 103.1° F., or 104° F., or 105° F. In these cases a fall of temperature of three or five degrees followed the administration of the drug. This fall of temperature occurred promptly after the taking of the drug. By allowing the thermometer to remain in the axilla it was observed that during the first quarter of an hour the temperature rose, but at the end of half an hour the temperature began to fall, and continued to fall from one-quarter of an hour to another one-tenth or two-tenths of a degree, so that after from four to six hours the maximum fall had occurred, for example, from 104.8° F. to 102° F. When the reduction had become established the temperature gradually rose in two or three hours one-tenth of a degree, and in the same ratio higher, until after eight or ten hours no effect of the drug upon the fever was apparent. The fall of temperature is generally more abrupt than the rise. The drug resembles all other antipyretics in the fact that its effect is most pronounced when given late in the afternoon or in the evening; it thus combines the natural depression of temperature with that generally produced by drugs. If the drug be given in the morning or early in the forenoon, a second dose will often be required to combat the usual tendency to rise of temperature at this time. In the case of a phthisical patient, the usual evening rise of temperature was completely prevented. The course of these cases was generally this: that by the administration of

the drug at ten or twelve in the forenoon, between four and six at evening the temperature became normal; at eight, ten, or twelve at night the temperature rapidly rose again, so that all traces of the original exacerbation had gone. This rapid rise of temperature was not, however, attended by chills or uncomfortable sensations, either in phthisical patients or the acute diseases.

As a rule, the rise in temperature was not attended by perspiration. Only in the cases of four phthisical patients, and one of a relapse in typhoid fever, did profuse perspiration follow the administration. These are the patients who are disposed to perspire freely, and with whom caution should be exercised in administering the drug. In one of these patients the experiment was made of attempting to prevent rise of temperature by the administration of doses of 5 grains of the drug every two hours. The second dose was given before the first had fully established its effect. In four hours' time, in addition to profuse perspiration, a sensation of chilliness and a rectal temperature of 95° F. resulted. It is worthy of note that, with other patients, this same mode of administration was employed without bad effects, and was apparently less energetic than the method of administration in larger doses. Among fever patients cyanosis and collapse never followed the use of the drug. It was especially noteworthy that in ten cases of pneumonia—a disease in which cardiac weakness is so often present—this phenomenon never appeared while this drug was used. On the contrary, the frequency of the heart's action was diminished, the filling and tension of the pulse were increased, phenomena which were not entirely due to the reduction of temperature, and which show that acetphenetidin is at least in no way injurious to the central organ of the circulation. By the great majority of patients a sensation of general well-being was a speedy result of the drug's action. The patients feel much lighter and more energetic, propose voluntarily to move about, and also to take food. If we are to accept this effect as a criterion for the use of an antipyretic, the drug under consideration is certainly of value in therapeutics. A diuretic effect was not observed. The urine was dark yellow in color; with ferric chloride a Burgundy-red color was produced, as is the case with many aromatic substances. The indophenol reaction was evident on using 9 grains of the drug. The urine of a patient taking this substance generally reduced an alkaline copper solution very decidedly, but the reaction was not always present. Fischer's phenylhydrazin test was always negative, and sugar was not present. An increased passage of albumen, while taking the drug, was never observed. An increase in sulphates, as was found in experiments upon animals, could not be recognized after the use of small amounts of the drug.

The writer concludes that (1) acetphenetidin is an efficient antipyretic; (2) it produces no ill or unpleasant after-effects; (3) the dosage is by quantities of 1½ grains; (4) the administration of a considerable dose (8, 9, or 10 grains) is more useful than the repetition of small doses hourly or every two hours.

FRACTURE OF THE SPINE.

THE hopelessness of cases of fracture of the spinal column under the old expectant or do-nothing line of treatment is so complete that we do not hesitate to express our conviction that the surgeon should always endeavor to replace, if possible, the broken portions of the bone, and when the deformity is reduced, maintain a proper position by means of the plaster jacket or other similar mechanical contrivance. In a late number of the *Boston Medical and Surgical Journal* Dr. H. C. Burrell records five cases treated in this way in the Boston City Hospital with two recoveries. Usually the patient should be anæsthetized and an attempt made to reduce the fracture whilst the body is in a prone condition. If this fail, suspension according to the method of Sayre should be essayed, although the procedure involves some danger of rupturing the spinal cord and, if the fracture is high up, of causing immediate death. The surgeon is, to our thinking, justified in taking this risk.

THE ANTIVIVISECTION AGITATION.

THE Philadelphia Society for the Restriction of Vivisection has recently indicated the true object of its existence, namely, the suppression of vivisection, by the publication for popular circulation of "'Illustrations of Vivisection, or Experiments on Living Animals;' from the works of physiologists as reproduced in 'Barnard's Martyrs' and 'Light in Dark Places,' by Miss Frances Power Cobbe." In this pamphlet it is affirmed that society is in the face of a new vice, namely, the vice of scientific cruelty, and

that vivisection ought to be stopped. Miss Cobbe says, "The vivisector ought to be stopped in pursuing his (otherwise) lawful end of advancing physiological science, by his consideration that the means of advancing it involve a moral offence (theologically viewed, the sin), of causing torture worse than death to guiltless creatures. This consideration, as has been said, ought to stop him, just as any other man ought to be stopped in pursuing any legitimate end (*e.g.*, the advancement of the interests of his country or family) if he find he cannot carry it out without employing immoral means,—deceit, robbery, persecution, treachery, or any other unrighteous mode of action."

As this pamphlet has no immediate interest for our readers, being intended for popular circulation, we would not have occupied space with it had it not been for the persistent attempt of members of the medical profession to produce the impression that they are co-acting with the Philadelphia Society only in the endeavor to confine physiological experimentation to competent persons, and have no sympathy with the attempt to suppress the practice.

TREATMENT OF GONORRHŒA.

IN an elaborate article in the *New York Medical Journal*, October 8, 1887, Dr. O. T. Osborne discusses the question as to the specificity of gonorrhœa, and comes to the conclusion that it is proved beyond controversy that the gonococcus of Neisser is a special microbe which produces the disease, and that therefore the disease is specific. Notwithstanding this theoretical conclusion, Dr. Osborne asserts, as the result of his own experience, and as the general conclusion of most writers, that the abortive treatment of gonorrhœa with corrosive sublimate injections is unjustifiable and unsatisfactory, and that even weak antiseptic injections are to be combined with constitutional treatment. Our own experience is in accord with that of Dr. Currier, in believing that the use of large quantities of bismuth is the best treatment for the early stage of the disorder. Dr. Currier, as quoted by Dr. Osborne, employs an injection of bismuth and glycerin, 1 drachm to the ounce. We have always used the bismuth simply suspended by mucilage in water, giving the patients direction to shake the bottle well before using, and to let it habitually stand on the cork so as to prevent the bismuth from caking at the bottom.

NERVE-SUTURE.

IN the clinical notes of the *British Medical Journal* of October 8 is reported a case, operated on by Mr. Croft at the St. Thomas Hospital, in which the tibial and femoral arteries and the posterior tibial nerve had been cut by a stab. The ends of the posterior tibial were found retracted an inch and a half, but were carefully sutured together with very fine silk and the wound dressed antiseptically. Twenty-four hours afterwards "sensation was observed to be present all over the foot, but modified in character in the sole." Five weeks later the leg was entirely well, the boy having perfect use of, and perfect sensation in, the foot and leg.

A NEW THERAPEUSIS IN EPILEPSY.

ANY person who shall discover or invent a method for treating epilepsy which shall cure even a moderate percentage of cases will be a great benefactor, not only of the human race but of the ordinary neurologist, whose sympathies are often excessively worked upon by failures to bring decided relief under circumstances most pitiable. It is, therefore, with great desire, although with much incredulity, that we approach the subject of the method of treatment of epilepsy devised by Dr. George T. Stevens, of New York. The central idea of this plan of treatment is that a large proportion of cases of epilepsy, as well as of chorea and of other forms of nervous disorder, are due to an unsuspected weakness of some of the optic muscles, which produce perpetual irritation by the excessive effort necessary to bring the ocular axes into unison. We understand that Dr. Stevens has prepared an elaborate work upon this subject, which will soon be before the medical world. Until this has appeared we do not propose to discuss the subject in detail, but simply to call attention to it. In an article in the *Medical Bulletin* for September, Dr. Ambrose Ranney confirms the work of Dr. Stevens. In order to correct the small degree of insufficiency which produces these nervous irritations, it was necessary for Dr. Stevens to invent a new operation, as the older plan of entirely severing the muscle is almost always followed

by an excessive result. This operation in the main consists of making a small opening through the conjunctiva, exactly over the insertion of the tendon, when the tendon is seized by extremely fine forceps, and divided in each direction, preserving the extreme outer fibres, or, at least, the reflection of the capsule of Tenon, which serves as an auxiliary attachment.

THE DOCTOR'S CARD.

IN a recent number of the *Canada Medical and Surgical Journal*, Dr. William Osler calls attention to the subject of doctors' cards. The subject may seem a trifling one, and yet the spirit of quackery may be revealed in the doctor's daily card as well as in his door-plate. The English physician usually has upon his card his name alone, with perhaps the address of his house or club. The American physician's card is apt to be large and boldly printed, and sometimes contains his titles or official positions, and still more frequently his address and office-hours. The door-plate is usually a reflex of the card. The principle involved in each of these methods of making the identity of the doctor known is, according to our thinking, the same. In each instance the desire should be to afford knowledge to those who are seeking it, rather than to attract the attention of those whose ears have not been already tickled by the fame of the physician. The door-plate should be inconspicuous, and yet not hard to find. The card should be modest, and always engraved instead of printed, and contain no titles other than that of doctor. As a direction to patients, the office-hours should be placed in the corner of the card. When this is done, the card becomes a purely business card, and no one who closely studies the proprieties of life would leave such a card upon social occasions. The doctor should, therefore, have two distinct cards,—the visiting and the professional card.

SANTONIN.

FEW Anglo-Saxons have been more energetic or more willing to take risks than the Russian traders, Messrs. Ivanoff and Sawinkoff, who, in 1883, followed the Russian arms in Turkestan by transporting, nearly three thousand five hundred miles on camels' backs through a dreary steppe, the machinery for the preparation of santonin. They are said to have spent between them three hundred and twenty-five thousand dollars in this work; and when the difficulties of communication between Turkestan and Nijni Novgorod, the nearest central station, are remembered, the boldness of these financial princes will be clearly seen. The hydrochloric acid used has to be carried in wagons two thousand miles across the wastes and deserts. Out of sixty tons which were sent in one wagon-train of one hundred and seventy wagons, no less than thirteen tons were said to have been lost by breakage. Formerly nine hundred to a thousand tons of the flower-heads of *Artemisia maritima* were yearly sent to Novgorod, *en route* to Western Europe. All this traffic is put an end to, save only as regards so much of it as is intended for the United States, the very heavy import duty upon santonin in this country preventing the importation of the manufactured article. The Turkestan works are said to have turned out ninety thousand pounds of santonin in 1885, of which the Japanese are affirmed to have taken fifty thousand pounds. Either the Japanese intestine must be a most extraordinarily rich soil for worms, or the people must employ the remedy for purposes not known to Western civilization.

AVELOZ.

IN the United States consular reports for October, 1884, attention was called to the use of the juice of aveloz in Pernambuco as a remedy for the treatment of cancer. The plant which yields it is said to belong to the family of Euphorbiaceæ, and to have been described in 1875 in Martin's "Flora Brasiliensis" under the name of *Euphorbia heterodoxa*. It is used as a local application, and is asserted to have been found especially valuable in the treatment of epithelioma. In sarcomatous and carcinomatous diseases it has not yielded so good results. In order to keep the juice, it is mixed, when fresh, with salicylic acid, which is said to preserve it without affecting its medical properties. Most of the Euphorbaceous plants contain an acrid juice, which is powerfully irritating to raw surfaces, or even escharotic, and of such nature seems to be the remedy in question. Its value has been confirmed by Dr. J. E. Janvrin in the "Annals of Gynæcology," vol. i. No. 1. He has obtained

excellent results from its employment in epitheliomatous uterine diseases. He says he prefers it as a local application to any other escharotic in such cases of epithelioma of the cervix as are not far advanced, and in which for any reason it has been decided not to extirpate either the cervix or the entire uterus.

Even when the disease is so far advanced that any other operation than curetting is contraindicated, the application of aveloz once or twice a week has proved very effective in diminishing pain (after the immediate pain produced by the application has ceased), and in decreasing the quantity and offensiveness of the discharges, thus prolonging the life of the patient, and making her presence much less objectionable, for a while at least, to those in constant attendance upon her.

GLEDITSCHINE.

OUR readers will remember that in our August and October numbers we expressed editorially some doubt as to the genuineness of the so-called gleditschine. This suspicion has been abundantly confirmed during the last month. The solution has been analyzed by three chemists, entirely independently of each other. Mr. F. H. Thompson, chemist of Parke, Davis & Co., published his article in the *Medical Age*, Professor F. G. Novy published his in the *Pharmaceutische Rundschau*, and Dr. John Marshall, Demonstrator of Chemistry in the University of Pennsylvania, his in the *Philadelphia Medical News*. The analyses are substantially in accord in showing that the solution sold as a two per cent. solution of the new alkaloid contains about six per cent. of cocaine salt, and, besides, some atropiné or other alkaloid of the mydriatic group.

In connection with this subject it is very interesting to note that in 1878 (*Philadelphia Medical Times*) Dr. B. F. Lautenbach made a chemico-physiological study of extracts made from the fruit *Gleditschia triacanthæ* and *G. ferox* as growing in the parks around Geneva. These extracts he found to produce in the frog stupor and a loss of all reflex activity. That this loss was due not to an influence exerted either upon the motor or sensory nerves was proven by the fact that it was not prevented by tying the artery of a leg, and thereby shutting off access of the poison to the muscles and nerves. It must, therefore, be spinal. Dr. Lautenbach did not make any study as to the possession of local anæsthetic properties by this alkaloid, although the contrary has been asserted by one or two observers. He obtained the alkaloids in the form of rhombic crystals, almost completely insoluble in water, but readily soluble in alcohol, capable of forming salts with acids, and acting upon frogs precisely as did the extracts. To this alkaloid Dr. Lautenbach gave the name of gleditschine.

THE INDEX CATALOGUE.

THE appearance of the eighth volume of this gigantic work shows that Dr. Billings and his associates are still persistently laboring on, and strengthens the hope that the time may come when the whole work shall have reached temporary completion. The growth of medical literature is so rapid that, even if the "Index Catalogue" does catch up to the library at Washington, volume after volume must still appear to keep the work abreast of the ever-advancing tide. The present volume includes thirteen thousand four hundred and five titles, twelve thousand six hundred and forty-two subject-titles of separate books and pamphlets, with twenty-four thousand one hundred and seventy-four titles of articles and periodicals, and is said to mark the completion of the first half of the work.

BIDENS BIPINNATA.

THIS common weed, usually known as beggar's tick, or Spanish needle, has long been used as a remedy in asthma and bronchial catarrhs by irregular practitioners in the United States, but, so far as our knowledge goes, has not attracted the attention of the regular profession, although mentioned in the United States Dispensatory. In a letter recently received by Dr. C. R. Gaul, of Jacksonwald, Pa., it is stated that he has employed the remedy (in the form of a decoction) with extraordinary success for the relief of hay-asthma. If any of our readers can give further information on the subject we would be obliged for a communication.

Reports on Therapeutic Progress.

DIAGNOSTIC VALUE OF THE GONOCOCCUS IN GONORRHŒA IN WOMEN.

According to the Swiss correspondent of the *British Medical Journal* for October 15, 1887, DR. CONRAD, at the spring meeting of the Medicinisch-Pharmaceutischer Bezirksverein of Berne, read an able paper on Neisser's gonococcus and its diagnostic value in female cases of gonorrhœa. Is it possible to differentiate a gonorrhœal affection of the female genitals from a non-gonorrhœal one by means of the microscopical examination of secretions and cultivation experiments? Such was the problem the author laid before himself, and tried to solve by special researches of two and a half years' duration. Dr. Conrad carried out his valuable researches in the following way. Having come across a case of acute, purulent, or mucoid catarrh of the vagina, womb, or urethra, where the affection had again and again recurred, or been followed by a very acute or chronic inflammation of the genital tract, or where there was a more or less clear history of gonorrhœal infection, he gathered (with due precautions and at several different times in every case) some discharge from the deeper portions of the cervix and urethra, and then subjected it to the bacterioscopic examination, conjointly with Drs. Emmert, Jr., Von Freudenreich, and Sahli, the observers (all experienced bacteriologists) working independently of each other. Sixty cases of supposed gonorrhœa were carefully studied after that plan. Only in five recent and in two chronic cases were characteristic groups of Neisser's microbe detected; in several other instances only a few isolated gonococci were found; in many other patients numerous bacilli and cocci could be seen, which by some authors are regarded as constant satellites of Neisser's micro-organism, but which also occur alone in chronic simple catarrhs. Cultivation of the discharge from twelve cases (including those where the gonococcus had been found) gave entirely negative results (the nutritive media employed being agar-agar and Kemmerisch's peptone gelatin). The general conclusions arrived at by the author are these: 1. Detection of the gonococcus succeeds more easily and more frequently in men than in women. It is so because the latter (*a*) experience comparatively less discomfort from acute gonorrhœa, where the microbe is most frequently demonstrated; (*b*) they generally seek medical advice and help far later than men; (*c*) as a rule, they pass water before undergoing a gynæcological examination and thus wash away or dilute their urethral discharge; (*d*) they sometimes come to be examined only after some treatment by injections or other local means. It is possible also that the detection becomes more difficult in consequence of gonococci being destroyed by micro-organisms of other species, which often grow luxuriantly in discharge of genital mucous membranes, "the female genital tube being a true natural incubator (*brutofen*) favorable to any bacterial growth." 2. While in recent cases of female gonorrhœa Neisser's gonococcus may be almost always detected, it cannot possibly be found in many chronic cases. 3. Hence both acute and chronic gonorrhœal affections may be present in women, in spite of our inability to demonstrate the pathogenic microbe in a given case. If so, the gonococcus may have only a limited diagnostic value, the practitioner being often compelled to rely only on etiological and clinical facts. Nevertheless, the practitioner must undertake a bacterioscopic examination as often as possible in every individual suspicious case, since detection of the microbe is of paramount importance as regards diagnosis, prognosis, and treatment of the case. In addition, Dr. Conrad states he obtained satisfactory results from treating (1) gonorrhœal catarrhs of the female genitals by vaginal injections of acetum plumbi, sulphate of zinc, and corrosive sublimate (1 to 2000); (2) very obstinate cases by dressing the vagina with iodoform, iodol, zinc milk, and salol gauze, as well as by "Paquelinizing" (*Paquelinisirung*) erosions; (3) urethritis by the internal use of santal oil (in gelatin capsules); (4) chronic gonorrhœal uterine catarrh (without any further complications) by *raclement*, with subsequent intra-uterine injections of tincture of iodine. Supreme importance, however, should be ever attached to prophylaxis. The strictest surveillance over prostitution, prohibition of marriage and coitus to every gonorrhœal male patient until every trace of discharge has disappeared; an urgent appeal to every man of the kind that he should not neglect his (chronic) affection, however slight, but should submit to treatment till he is completely cured (since otherwise he will most cruelly sin against his wife and children). Those are preventive measures against formidable prevalence of gonorrhœa, most justly and forcibly insisted on by the author; justly, because chronic gonorrhœa is but only too

often regarded by non-medical men as of no importance, and that not only in Switzerland, but also in other countries. In the course of a prolonged and interesting discussion which Dr. Conrad's paper gave rise to, Drs. Emmert, Dick, and Sahli and Professor Demme also expressed their belief that while the gonococcus can, with certainty, settle the question in regard to a specific nature of the case, a negative result of the bacterioscopic examination by no means excluded gonorrhœa. Dr. Emmert pointed out that the outcome of his and Conrad's researches seemed to pretty well coincide with that of Welander's, a Swedish practitioner who had published his observations in 1884. Especially Dr. Emmert drew attention to the fact that the genuine habitat of the gonococcus appeared to be discharge of the urethra, and not that of the vagina, since, when the microbe was found in the former, artificial inoculation of the vaginal mucous membrane almost invariably produced gonorrhœal vaginitis, while inoculation of the vaginal discharge from a gonorrhœal woman in the vagina of a healthy one had no bad effect. Dr. Dick mentioned that he obtained satisfactory results from treating female gonorrhœa by a two per cent. solution of thallin (as recommended by Professor Goll, of Zurich; see the *Journal*, May 21, 1887, p. 1133). Professor Demme stated that he, while experimenting after all possible methods, was unable to obtain any cultures of gonococci. Hence he doubted whether Professor Kreis (who had been able easily to cultivate the microbe in agar-agar) had had to do with a true gonococcus. The same opinion was expressed by Dr. Tavel. Dr. Sahli asserted that the microbe could not be demonstrated very often even in such female cases where it mattered about gonorrhœa with certainty, or at least with a great probability. Thus, he was not able to detect it in a patient with a profuse purulent vaginal discharge, who had been recently infected by a man with a typical gonorrhœa and with masses of gonococci in his urethral discharge. Only some extracellular diplococci were discovered in the woman. Dr. Sahli ascribes the difficulties which beset the detection of gonococci in female cases mainly to the possibility of their being crowded out by other vaginal fungi of non-pathogenic and "half-pathogenic" varieties. By "half-pathogenic" (*halb-pathogene*) the author means bacteria which give rise to inflammatory processes only when they are present in considerable quantities, or when the system is already weakened or injured in some other ways. (As an example of such "half-pathogenic" microbes, Dr. Sahli adduces bacteria occurring in catarrhal pneumonia: they are purely saprophytic; but when the inner surface of the lung is damaged by bronchitis, they begin to grow luxuriantly and set up inflammation, partly by mechanical irritation and partly in virtue of a chemical action of their metabolic products.) As to male cases of chronic gonorrhœa, the author denies that Neisser's microbe was often absent in them. At least, having examined a number of cases of the kind, he was invariably able to detect the gonococcus, even after a very prolonged existence of the disease.

DECOCTION OF LEMON IN INTERMITTENT FEVER.

Dr. R. A. Lancaster, of Gainesville, Fla., writes in the *Medical Record*, October 8, 1887, as follows: "For two years or more I have been using the decoction of lemon, as recommended by Dr. Crudeli, for the prevention and the cure of intermittent fever. In many cases it acts 'like a charm,' even where quinine and arsenic have failed to prevent frequent returns of the chills. It is especially serviceable in that class of patients that we sometimes meet with, who cannot take quinine without experiencing such unpleasant symptoms as urticaria, nausea, headache, nervousness, etc. In my experience the lemon decoction has proved much more efficacious than arsenic in preventing the recurrence of the chills after they have been broken with quinine, and in one case, at least, it promptly relieved the chills where large doses (twenty grains per day) of quinine had failed to do so. About twelve months ago, Patrick M—— applied to me for treatment, declaring that he had had a chill and fever every day for a week, although he had been taking daily, under a physician's directions, twenty grains of quinine and thirty drops of Fowler's solution of arsenic. I stopped the quinine and arsenic and put him upon the lemon decoction, and the result was prompt relief. I met the same patient again a few days since, and he told me that he had several times had a return of the chills, but they were always promptly relieved by the lemon. He said that he had never had a chill upon the same day on which he took the lemon. In quite a number of cases where there had been a recurrence of the chills on the seventh, fourteenth, or twenty-first days, this habit was broken up by

using Dr. Crudeli's remedy two or three days each week. My usual plan for treating the intermittent type of malarial fever—and it has been very successful—is to give, when first called, a mercurial purge ; I then direct quinine—from five to twenty grains, as may be necessary to prevent the paroxysm—to be given at one dose five hours before the expected chill ; every morning thereafter, until the patient is considered cured, I direct the lemonade, *à la* Crudeli, to be taken before breakfast. Of course, anæmia, engorgement of the liver and spleen, or any other of the sequelæ of malaria must receive appropriate treatment. The greatest objection I find to the lemon treatment is the difficulty of getting the patients to carry out the directions. They think them too simple to seem to be very important."

TREATMENT OF HECTIC FEVER.

It has been only since the careful bedside observations of Wunderlich that the thermometer has played such an important part in fevers, and the great value of carefully recording the fluctuations of the temperature been fully realized. The treatment of fevers varies to a great extent. Quinine and salicylic acid are old "stand-bys ;" then later kairin and thallin came into use ; then acetanilide, or the so-called *antifebrin.*

The success which attended the use of these drugs, so far as lowering the temperature was concerned, caused at first, naturally enough, their practical value to be overrated.

Our experience with hectic fevers, such as usually accompany chronic tuberculosis, is even less favorable than with fevers of the typhoid type. Indeed, but a few years ago, no other remedy was thought to be of any avail but quinine. Hydriatic treatment was seldom, if ever, resorted to, on account of the dangerous accompanying and after-symptoms.

The remedy most frequently used in such cases is antipyrin in doses of about 0.5 gramme (7½ grains) to 1 gramme (15 grains).

Professor Alfred Pribram, in an article in the *Prager Med. Wochenschrift* on the treatment of hectic fevers, speaks of his experience with the drug, and states that he has found smaller doses of far greater value.

He considers a long-continued use of antipyrin unadvisable. Under its use the temperature will sometimes fall to subnormal, and he calls special attention to the fact that the lower the temperature is reduced by full doses of the drug the next rise will be proportionately higher.

Some cases which the writer cites show a rise and fall of over three degrees Centigrade daily.

The author advises the following treatment, which, he contends, will yield the best results :

A tablespoonful of a one per cent. solution of antipyrin contains about 0.15 gramme (2¼ grains) of the drug, and the same amount of a one and one-half per cent. solution contains about 0.23 gramme (3¼ grains). When first trying the effect of antipyrin on hectic fevers one should give about two tablespoonfuls of the one per cent. solution (less for a child or aged person) about half an hour before the fever begins. Then carefully watch the temperature, and note if the rise is less than usual. If the rise is above 38° C., then give another tablespoonful of the solution ; and this should be done every hour until the temperature falls below 38° C. Usually two doses will prove sufficient. If the one per cent. solution seems strong enough, it should be continued in the same manner for four or five days ; if not, the one and one-half per cent., or even a two per cent., solution may be used in its place. On the sixth or seventh day begin to omit one dose daily, viz., the last one (that is, if you have been giving three doses daily, omit the third dose). The results will usually continue to be the same. Then continue this treatment for a few days longer, then drop another dose, and proceed again in the same manner, keeping meanwhile careful record of the temperature. Soon the remedy may be stopped entirely, without changing the temperature. Continue, however, the observations, as possibly the temperature will rise again, owing to severe coughing, overloading of the stomach, or during menstruation, in which case antipyrin may be commenced again, and given in the same manner as indicated above. The appetite generally increases, and strong nourishment should be given.

Professor Pribram gives numerous cases which show the good results of his method in using the drug.

In those cases which cannot bear even small doses of antipyrin, when its use causes profuse perspiration, or where there is a tendency to hemorrhage, acetanilide (antifebrin) may be used in its place, and in the same manner, with similar results.

ANTIPYRIN AND ANTIFEBRIN IN HAY-FEVER.

Dr. W. Cheatham, of Louisville, Ky., writes to the *Medical Record*, October 8, 1887, as follows: "This being what is known as 'hay-fever' season, I wish to call the attention of the profession to the use of the above drugs in this affection. I do not remember seeing any article on the subject. I used antipyrin frequently last summer and fall, always with the best results. This summer I have been, and am now, using it in a number of cases, and have been also trying the antifebrin. Mr. B——, foreman in a large railroad repair-shop, has had so-called hay-fever for ten years; the difficulty begins with him in early spring, and ends with cold weather. He has taken, during the whole summer, a daily dose of fifteen grains of antipyrin, which has given him great comfort, relieving him entirely of all the fever symptoms, stimulating him for work, giving him good rest at night, and lessening very much all nose and eye symptoms. I used it last summer in fourteen other cases, with similar results. This summer I have tried the antifebrin in half of my cases. The effect has been about the same as from antipyrin. In a few of the cases some slight depression was complained of, but this is readily corrected by small doses of belladonna or its alkaloid. As I stated before, some of my patients have taken both the antipyrin or antifebrin (more frequently the former) daily—from ten to thirty grains of the former, or from four to six grains of the latter—for several months, with no bad effects. I know it to be of great benefit in hay-fever, and am anxious for others to try it."

THE ACTION OF VERATRINE.

The physiological action of veratrine was investigated many years ago by Prévost in France, Guttmann and Bezold and Hirt in Germany, and Amory and Webber in America. More recently Boehm, Fick, and Rossbach in Germany, and Ringer and Brunton and Cash in England, have added to our knowledge of its influence on the muscles and heart.

For the purpose of confirming or refuting previous observations, Lissauer, under the direction of Boehm, has carefully re-examined the effects produced by veratrine on various organs, and published his results in the *Arch. f. Exp. Path. u. Pharm.*, xxiii., Heft 1 and 2. We take the following from the analysis of his paper published by Dr. Leech in the *Medical Chronicle* for September, 1887: He used in his experiments crystallized veratrine. Its action, he says, does not differ from that of the amorphous veratrine of the German Pharmacopœia, which consists of a mixture of cevadine, a crystallized alkaloid, and veratridin, an amorphous base. Concerning the influence of veratrine on the muscles of cold-blooded animals, Lissauer made no special investigations, because of the general agreement which prevails as to the phenomena observed. He is inclined to think, however, that the motor phenomena produced by veratrine, though chiefly dependent upon its action on the muscle, are also influenced first by stimulation and then by paralysis of the cord. He is thus in accord with Kölliker and Guttmann, but his views are founded rather on inferences from what he has observed in warm-blooded animals than on direct experiment. In the dog, and to a less extent in the rabbit, he saw veratrine produce first an ataxic condition, which, from previous experiments of Rossbach and the character of the motor disturbance which he noted, he attributed to the increased irritability and altered contractility of the muscles caused by veratrine. Afterwards he says he noted a paralytic convulsive stage, and this he considers centric in character. The reasons which he gives for this view, however, are not quite clear and convincing.

On the frog's heart, veratrine, he finds, produces first a decrease of pulse-frequency, then peristaltic movement (Herzperistaltik), followed by strong and slow ventricular contractions. In the isolated heart the contractile power of the ventricles as estimated in Williams's apparatus seems at first increased and then decreased. The slowing influence of veratrine is seen when the heart is isolated as well as when it is *in situ*. In his experiments on warm-blooded animals Lissauer was unable to obtain the increased rapidity of heart's action and rise of pressure which Bezold and Hirt state they saw after small doses. He found the pulse slowed and the pressure decreased, though during poisoning by veratrine irregularities in pressure and frequency occur. He thinks it is possible, as Bezold and Hirt affirm, that veratrine stimulates the vagus centre, but the slowing of the heart is chiefly due to the direct influence of the drug on the motor ganglia or muscle; the slowing is not accompanied, when ordinary doses are given, by loss of power of the contraction. Bezold's and Hirt's experiments seem to indicate that veratrine first stimulates

and then paralyzes the vaso-motor centre. Lissauer finds no evidence of stimulation. The most important effect of veratrine is due to its paralyzing influence on the vaso-motor system, but whether this is central or peripheral he is unable to determine. Lissauer finds, like earlier observers, that veratrine produces slowing, temporary intermission, then cessation of respiration; a slight acceleration at first noted is due to the psychical excitement produced by the experiments. Atropine directly antagonizes the action of veratrine on the respiratory centre, and when the two drugs are given together life is longer sustained than when veratrine is given by itself.

RAPID ANÆSTHETIZATION.

In the *New York Medical Gazette* of October 22, Dr. J. Leonard Corning makes a suggestion, which seems to be based upon sound principles, and may occasionally be of avail in hastening the action of an anæsthetic. Noticing that small men were intoxicated by much less quantities of alcohol than was required for men of great bulk, he conceived the idea of reducing the quantity of blood to be saturated by the anæsthetic, and thereby increasing the intensity of the action of the drug in a certain length of time. In a case of difficult etherization, owing to habits of intoxication, a strong, flat, elastic tourniquet was secured around each of the patient's thighs, so as to arrest both the arterial and venous blood-flow in the same. By this procedure each limb was converted into a receptaculum for a considerable proportion of the total blood-mass, or, as a bystander "put it," "about one-third of the man was cut off," and consequently it was only necessary to saturate the remaining two-thirds (of the total blood-mass). The result was very satisfactory, and after the operation, which was a brief one, when the ligatures were removed, the patient recovered from the effects of the ether instantly. Dr. Corning states that if he has again occasion to test this method of introducing general anæsthesia, he intends to ligate the arms as well as the lower limbs, and place the ligature as near the axilla as possible.

PROPOSED CHEMICAL LUNG TEST.

Dr. Zaleski, of the Dorpat Physiological Institute, has published in the *Vrach* (No. 32) an account of some researches he has been making with the object of introducing a new lung test, which may be trusted to give satisfactory results in cases where the hydrostatic test is inapplicable or of doubtful value. He suggests that, as at the moment of birth there is not only an influx of air into the lungs, but a very marked increase in the blood circulating through them, and as blood contains iron in a tolerably definite proportion, the quantity of iron found in the lungs should furnish a clue to the question as to whether the child had breathed or not. He examined the lungs of four still-born children and of three children born alive; also those of a healthy man who had been killed by an accident. Having of course taken care that the lungs had not been subjected to any previous section or manipulation, he tied the roots and cut off the bronchi. They were then immersed in distilled water for the hydrostatic test, and, after being dried with filtering paper, they were weighed in a platinum dish, and sections were made and carefully examined. After this they were dried in a hot-air chamber at from 115° to 120° C. until they ceased to lose weight. Soda was added to the dried lung-substance, also water, and the whole was dried in a water-bath. The mass was then ignited in a Bunsen's burner, treated with water, and thrown on a filter, which gave no ash. The whole was then again ignited. Here, all the iron was, of course, not in the filtrate. It was then heated with strong hydrochloric acid in a water-bath. After the hydrochloric acid had evaporated, the residue was treated with sulphuric acid, reduced by zinc, and the iron estimated by a solution of permanganate. The result of the observations showed that the iron contained in the lungs of children that had breathed was always considerably more in proportion to their weight than in the lungs of still-born children. The mean percentage of iron (Fe) in the lungs of the still-born was 0.0110 of the weight of the fresh lung, and 0.0828 of the dried lung; whereas the mean percentage of iron in the lungs of the children who had been born alive was 0.0188 of the weight of the fresh lung, and 0.1182 of that of the dried lung. The iron in the case of the adult was still more than in that of the infants, the percentages being 0.0217 and 0.1266 of the fresh and dried lung-substance respectively. In one case in which the child had lived for five days part of the left lung was found diseased, there being evidences of septic pleuritis and pneumonia. Here the diseased portion of the lung was separately examined, and found

to contain a percentage of 0.0192 of iron in the fresh state, and of 0.1197 in the dry state, so that it would appear that the "iron lung test" holds good even for diseased lungs. The author has not made observations in cases where there has been profuse hemorrhage from the cord, nor in those where putrefaction has commenced, but he thinks it probable that the test would answer here as well as when the lungs have been immersed in spirit. Of course, artificial inflation after death would not vitiate the test, as was indeed proved by one of the cases where Schultze's method of inflation was adopted five hours after stillbirth. Dr. Zaleski's "iron lung test" is evidently of too complicated a nature to be carried out by the ordinary practitioner, but in doubtful cases it would be quite practicable to preserve the lungs and send them to an expert, just as the stomach and other viscera are sent in poisoning cases. Before, however, any real value can attach to evidence deduced from it, a large number of experiments must be made by different observers, and their results collated.—*Lancet*, October 15, 1887.

THE USE OF MENTHOL IN TUBERCULAR LARYNGITIS.

At the meeting of the Cincinnati Academy of Medicine, Dr. James G. Hyndman read a paper (*Cincinnati Lancet-Clinic*, October 8, 1887) on the use of menthol in tubercular laryngitis, a drug which was first used in this connection two years ago by Dr. Rosenberg, of Berlin.

Rosenberg's attention was first directed to this use of menthol by observing the anæsthetic and analgesic influence it exerted upon the nasal and pharyngeal mucous membranes. This led him to its employment in the larynx, especially in the ulcerative stage of tubercular laryngitis, and a very extended experience has shown that it is well borne. The first sensation produced is that of a slight tingling, followed by a pleasant cool feeling. After the first few sprays cough is seldom excited. Rosenberg advises to apply the agent by means of the laryngeal syringe, guided by the mirror. Dr. Hyndman has found the spray apparatus in general use preferable, the force being that of a chamber of compressed air. Attempts at gargling kept up by the patient secure contact of the dissolved menthol with all parts of the diseased tissue of the larynx.

The writer's experience with the use of this agent is limited to five cases, two of them well advanced, but his results are singularly corroborative of Rosenberg's eighty cases (including some pulmonary patients). In a comparatively short time (from one-half to one week) there was marked subjective improvement, with diminished dysphagia, increased hopefulness, and improved nutrition. The changes in the local processes reported by the author were striking. The ulcerations rapidly lost their dirty gray appearance, and fresh, healthy granulations were set up, resulting, in a time varying from two to ten weeks, in perfect cicatrization. The thickened and infiltrated mucous membrane did not respond until lactic acid applications were made. While the latter possess the advantage of much more rapid action on local ulcerations, they are at the same time far more painful.

In hospital cases it may be possible to follow the directions to make these applications twice a day in the earlier part of the treatment. But in private and dispensary practice it is seldom that we can see our patients oftener than once in twenty-four hours.

The sedative effect of the menthol lessens dysphagia, and thus promotes nutrition, the first application securing comparative ease for several hours, and the next for a still longer time. Finally, one application daily will secure the patient moderate relief. The solutions employed may be either oily or alcoholic, Dr. Hyndman never having found the alcoholic solution to produce pain. In fact, he prefers it to the solution in oil, since the latter requires a troublesome warming of the receptacle, or its application by the syringe. The strength of the solution may vary from five to twenty per cent., fifteen per cent. being well borne. In many of his cases Dr. Hyndman states that a year has elapsed without the development of further tubercular symptoms, though it may be that a sufficient time has not yet passed to enable one to pronounce positively that cures have been effected. Notwithstanding the excellent results which have so early followed the local treatment, and the apparent healing of ulcers and improvement of the general system, it would certainly be the course of wisdom to continue the treatment by inhalations, or very forcible sprays, for a long time, in the hope of exerting the same fatal action upon tubercle-bacilli possibly present in the deeper air-passages. The experiments made by Reichert, of Rostock, consisting of throwing spray of saffron deep into the open tracheæ of living

animals, and then, the animals having been killed, finding the discoloration in the terminal divisions of the air-passages, would seem to show conclusively that good results can be obtained in pulmonary tuberculosis by antiseptic inhalations of sprays. Not only is it theoretically proved, but the narration in the address referred to of a number of apparent cures would seem to place this plan, if not this particular agent, in the first rank.

The theory of the action of menthol is simple. Koch found that ol. menth. pip., of which menthol is the active constituent, prevents further development of anthrax bacilli in the proportion of 1 to 33,000, and kills cholera bacilli 1 to 2000. Experiments made in Koch's laboratory have shown that menthol introduced into pure culture of tubercle-bacilli caused their destruction.

Again, its action on tubercle-bacilli is shown by the experiments of Sormain and Bagnatelli, who mixed one cubic centimetre of tubercular expectoration with the antiseptic (proportion not stated), and watched it for one to two hours at a temperature of 35° to 40° C. (95° to 104° F.). They then injected it, by means of a disinfectant syringe, into guinea-pigs, without any infection resulting.

Our hopes from the use of menthol in this class of cases are founded, therefore, not only upon experimental evidence, scientifically as it has been built up, but also upon a favorable report of its clinical utility based upon a very considerable experience. If it be true, as claimed for it, at the present time there is no other effective antiseptic agent known which can be introduced into the organism in so concentrated a solution, and for so long a period, without risk or danger to the general system, menthol certainly deserves an extended trial.

CHAMPNEYS ON ARTIFICIAL RESPIRATION IN INFANTS.

In a very excellent little monograph on this subject, recently published, Dr. Champneys, after a number of experiments on infants in whom no attempt at respiration had taken place, arrives at the following conclusions: "Never hurry; it is not a question of seconds, and success depends upon a fine exercise of the judgment. Make a good diagnosis first as to life or death; secondly, as to the stage of asphyxia. If the heart beats ever so slowly and feebly, the infant is not dead. If the heart is not beating death is not certain, unless it can be proved to be inactive for some time. If the child is livid and not flabby, it will probably come round; wipe out its mouth and pharynx, and rub it with a soft cloth down the spine; press gently on the cardiac region. If this produces no effect, or if it be in the pale stage, inflate the lungs by the mouth and then by Silvester's method. If air enters the lungs, well and good; if not, try Schultze's method, or insert a catheter as described above. On the first sign of muscular action, plunge the child into cold water, or into alternate hot and cold baths. Vary the treatment between occasional inflation of the lungs, artificial respiration, pressure over the cardiac region, baths, irritation down the spine, according to the judgment, remembering what may be expected of each method, and that no one method will suffice for all cases. Watch for signs of resuscitation,—namely, improvement in color, in movements, in cardiac pulsations, as described above. Never be content until the child breathes regularly and appears to be continually improving."—*Medical Press*, October 5, 1887.

WHOOPING-COUGH TREATED BY NASAL INSUFFLATIONS.

In the *British Medical Journal* for October 15, 1887, Mr. George Holloway gives a brief account of twenty-four cases of whooping-cough treated with insufflations of boric acid, according to the plan first proposed by Dr. T. Guerder, of Paris. Dr. Guerder's treatment is based on the theory that whooping-cough is due to nasal reflex action (of parasitic origin), caused by congestion of the pituitary mucous membrane and nasal catarrh. The congestion of the respiratory tract in this disease always commences in the Schneiderian membrane, and extends from it to the other parts, partly, perhaps, from the multiplication of the germs and partly from the incessant cough, which produces chronic congestion of the mucous membrane of the air-passages. In support of this statement Mr. Holloway states that if the congestion of the Schneiderian membrane be relieved by the application of boric acid, congestion of the other parts disappears also.

As yet no essential germ of this disease has been satisfactorily demonstrated, but from its infectious nature there can be little doubt but that it is due to a specific germ, and Mr. Holloway believes that the favorable results which he has obtained from the use of boric acid are due to its action as a parasiticide. The

method of treatment which he advises is as follows: He confines the patient to one room for one week or ten days, and instructs that each nostril be insufflated every three hours during the day, and once during the night, with from 2 to 3 grains of finely-powdered boric acid. No difference is made in the diet unless there is some special circumstance which calls for it, and at the end of ten days the child may be allowed to go out in favorable weather. The average duration of the twenty-four cases which Mr. Holloway reports seems to have been about three weeks, —a great reduction in the usual duration of the disease.

HYDRASTINE AND BERBERINE.

PROFESSOR SCHMIDT publishes some further information respecting the remarkable resemblance of hydrastine to narcotine in its behavior to oxidizing agents. Last year (*Pharm. Journ.*, 3, xvii. 427) Messrs. Freund and Will stated that upon treating hydrastine in acid solution with oxidizing agents it splits up into opianic acid, and a base closely resembling cotarnine, which appears to have been since named hydrastine. Professor Schmidt now states that if the oxidation be effected in alkaline solution the decomposition goes further, the products being hemipinic and nicotinic acids. Notwithstanding this complete correspondence in behavior, all attempts to convert hydrastine into narcotine, or *vice versa*, have hitherto failed. It is further affirmed by Professor Schmidt that, although hydrastine crystallizes from acetic ether in very large crystals, it does not form any well-crystallized salts except the picrate, the salts being usually of syrupy consistence, drying up to a horny substance of inconstant composition. He, therefore, infers that the commercial salts of hydrastine are not of constant composition, and probably are mostly basic compounds.

With berberine and its salts the conditions are exactly reversed, the alkaloid being difficult to obtain in a crystalline form, while its salts are really crystallizable. On this ground Professor Schmidt questions the character of the substances described in price-lists as "berberinum purum," which he is reported to have stated always contains chlorine (*Pharm. Zeit.*, September 24, p. 542). He says that berberine has a remarkable power of combining with solvents, such as alcohol, ether, chloroform, and acetone, to form crystalline compounds. Thus, berberine and chloroform, in the proportion of one molecule of each, form a beautiful crystalline body, which is not a simple addition product, since it is permanent at 100° C., and by acids is decomposed, not simply into berberine and chloroform, but decomposition products of the latter. Berberine can also combine with a second molecule of chloroform, but this behaves like water of crystallization.—*Pharmaceutical Journal and Transactions*, October 1, 1887.

REMARKABLE CASE OF ANTIFEBRIN-POISONING.

The following extract is from a letter addressed to the *Deutsche Medicinal-Zeitung* by DR. DOLL, of Berlin:

"The extensive uses of antifebrin in the practice of medicine, and its universal employment for neuralgia, toothache, headache, and the like, compels me to bring the following case of antifebrin-poisoning (the only one to my knowledge) before the profession:

"Mrs. D., who suffered from nervous headache, advised by an article in the *Berliner Lokalanzeiger*, purchased twenty-five pfennigs' (about six cents) worth of antifebrin, and put the entire quantity in two portions, which she drank in close succession.

"In about three hours vomiting began, and a cold sweat broke out all over the body, and the patient sank into a deep faint.

"Several hours subsequently I was called in, and found the face, ears, chest, hands, and feet as cold as ice, and covered with a cold sweat; the abdomen was warm but moist; the face deathly pale; eyelids closed, but when spoken to she would open her eyes; pupils moderately dilated, and showing but little sensitiveness to the light; heart beating violently; respiration rapid; pain in abdomen; nausea, with occasional retching, but no vomiting.

"The nervous system was in a most strange condition, for, although the woman lay perfectly unconscious of her surroundings, yet she was able to answer to all my questions promptly and sensibly, although only in a weak voice.

"She said that she felt as though she were continually falling, and that she felt perfectly numb.

"In the morning, after the continued use of strong excitants during the night, consciousness returned, accompanied by a most profuse perspiration. At nine o'clock the temperature was normal; the pulse was still up to 108. The whole abdomen was sore and painful. Strange to say, the patient remem-

bered nothing of her condition the night before, and did not even recall the presence of the doctor. This seems to show that antifebrin produces an effect on the nerves similar to an hypnotic state, in which the patient can be made to answer questions and obey commands without having any self-consciousness.

"The next day the patient showed a marked loss of appetite; the face was flushed, and she complained of a severe headache. The symptoms of the poisoning had disappeared." It is unfortunate that the quantity of the drug taken was not more clearly indicated.

A NEW METHOD OF TREATING THE VOMITING OF PREGNANCY.

Notes of three cases published by Dr. William Duncan in the *Lancet* for October 15, 1887, would appear to indicate a method which in many cases will appear to produce the most marked success in overcoming the vomiting of pregnancy. Dr. Duncan found in a number of cases which he examined that the vomiting of pregnancy was accompanied by some affection of the uterus and tenderness about the cervix and vagina. He employed a fifteen per cent. solution of cocaine in such cases, painting it freely on the vaginal roof and cervix, and in some instances inserting a probe covered with cotton-wool and soaked in the solution into the cervical canal. It would appear that the *modus operandi* of the cocaine would be to remove the morbidly hyperæsthetic condition of that portion of the uterus above the internal os, which is supposed to exist in these cases. Dr. Duncan claims that to obtain the full effect of the cocaine it must be applied to the cervical canal, and herein lies the danger, for a careless or unskilful application might readily produce abortion. Dr. Duncan, however, states that he has made a number of such applications to the cervical canal during gestation without terminating the pregnancy in a single instance.

ACETPHENETIDIN AS AN ANTIPYRETIC.

Acetphenetidin is a combination of acetyl with phenetidin, and is a base of analogous composition with acetanilide (antifebrin).

Dr. G. Kobler, in the *Wiener Med. Wochenschrift*, speaks of it as an antipyretic. He says that although a healthy man will not be affected by doses of 0.5 to 0.7 gramme (7½ to 10½ grs.), yet in fever patients 0.3 to 0.4 gramme will be found to reduce the temperature to a marked degree. Dr. Kobler cites fifty fever cases in which the drug was successfully used, among which were cases of tuberculosis pulmonalis, pneumonia crouposa, typhus abdominalis, sepsis puerperalis, pleuritis, and meningitis cerebro-spinalis. He states that in adults doses of 0.6 to 0.7 gramme, and in children 0.2 to 0.3, proved sufficient.

The drug begins to act in about four hours, and will keep the temperature down from two to three hours at the longest; then the temperature will slowly rise about 0.2° C. The influence of the drug seems to be lost in about eight hours.

According to Dr. Kobler there are no disagreeable symptoms accompanying the use of acetphenetidin, neither is the rise of temperature accompanied by sweating or the fall by chills. Cyanosis and collapse were not observed. Out of ten cases of pneumonia treated with the drug, six terminated fatally on the fifth and sixth days. In one case of pneumonia in a patient also affected with Bright's disease acetphenetidin was given in doses of 0.7 to 1.6 grammes without any signs of intoxication.

The drug seemed to have no injurious effect on the diseased kidneys. In the beginning of the disease there had been a good deal of blood in the urine, which, however, grew less under the use of acetphenetidin.

ADONIS ÆSTIVALIS.

This plant has been examined by Italian doctors as to its therapeutic value, and Albertoni reports in its favor. His experiments were made on animals and sick and healthy people. In cases of insufficiency of heart-action, with feeble, irregular, rapid pulse, diminished arterial pressure, dyspnœa, and diminished excretion of urine, the administration of the plant in substance produced, in a few days, the return of normal pulse, increase of the pressure of the blood, and disappearance of the respiratory oppression. The quantity of urine increased from eight hundred to three thousand cubic centimetres in a day. These good results were not obtained in cases in which the organs susceptible to the influence of adonis, such as the kidney epithelium, muscular fibre, and the nerve apparatus of the heart had already retrograded to too great an extent. The dose is 4 to 8 grains a day, given in substance or infusion. The effects manifest themselves about the third day.—*Pharmaceutical Record*, October 15, 1887.

GASEOUS RECTAL INJECTIONS AND THE GLYCOGENIC FUNCTION OF THE LIVER.

MM. Arnozan and Ferré, of Bordeaux, communicated to the Toulouse Congress an interesting observation they had made with reference to gaseous rectal injections tending to show that sulphuretted hydrogen introduced into the animal economy in this manner arrests the glycogenic function of the liver. Three rabbits which had been subjected to these injections died, two of them in a short time, the third after a rapid and progressive emaciation. In all three the liver-tissue was found to contain no sugar whatever.—*Lancet*, October 8, 1887.

HÆMATEMESIS.

The stomach of a patient suffering with hæmatemesis is always extremely sensitive. A mere drop of water or medicine, or a drop of blood from the wound, will cause burning and symptoms of vomiting. It is, therefore, very difficult to give any medicine to the patient. Their spirits are also always depressed, as even talking and the swallowing of saliva will irritate the stomach.

Dr. Geyza Dulácska gives an account of ten severe cases in the *Pester Med.-Chir. Presse:*

Case I.—Varix of the œsophagus; hæmatemesis; death.

Case II.—Ulcer of the stomach during pregnancy; vomiting of blood after birth; recovery.

Case III.—Ulcer of the stomach; vomiting of blood; recovery.

Case IV.—Hæmatemesis during hypertrophy of liver.

Case V.—Adenoid degeneration of the liver; recovery after long and frequently recurring hæmatemesis.

Case VI.—Man, aged 62, with amyloid degeneration of liver and spleen, who, when lifting a heavy weight, suddenly became ill, and began to vomit blood.

Cases VIII., IX., and X.—Vomiting of blood in connection with heart-affections.

Dr. Dulácska says that in internal hemorrhages astringents are useless, and the only hope of recovery lies in coagulation or the stopping up of the bleeding vessels.

In rupture of the spleen rapid coagulation often checks the hemorrhage, and makes recovery a possibility. Indeed, even in the rupture of abdominal aneurism, coagulation will sometimes keep life a whole week, when immediate death was looked for.

The arrest of the hemorrhage depends on the formation of a thrombus.

The doctor's remedies are rest, ice, and ergotin. The first day the patient should neither eat nor drink, so as to give the stomach perfect rest. On the second day, iced milk in small quantities may be given. Absolute rest must be had, as any movement is liable to cause irritation of the stomach. The patient must not be allowed to speak. Small pieces of ice may be put in the mouth, but the ice-water must not be swallowed. Washing out of the mouth with ice-water will quench thirst. On the fourth or fifth day meat may be given. Ice-bags may be placed over the stomach, but they are not of any great value, and frequently the patient cannot bear their weight.

By means of ergotin the pulse may be reduced 10 to 15 to 36 beats, and the smaller arteries contract themselves, and the frequency of the respirations will be less. It must not be given by the mouth, but as an injection in a ten to twenty per cent. solution.

THE URINE IN TABES DORSALIS.

The following facts are set forth by MM. Livon and Alezais as the result of a series of researches on the urine of patients affected with an apyrexial disease of the cord,—namely, tabes dorsalis: A tendency to diminution of the urea eliminated in the twenty-four hours; a diminution in the total daily discharge of phosphoric acid, with a tendency to proportional augmentation of the discharge of earthy phosphates; a great variation in the elimination of chlorine, with a bias in favor of hyperchloruria. Intravenous injections of tabetic urines appear to be sufficiently toxic in their action, since it has been found that from twelve to twenty-four cubic centimetres of urine per kilogramme of body weight of animals was sufficient to kill dogs.—*Lancet*, October 15, 1887.

SCOPOLIA ALKALOIDS.

It will be remembered that some time since Professor Eykman announced that he had separated from Japanese belladonna-root (*Scopolia japonica*) an alkaloid resembling atropine, which he named "scopoleine," and under that designation a brown syrup has since been supplied in commerce as a mydriatic alkaloid.

According to PROFESSOR SCHMIDT, of Marburg, however, the scopolia-root contains no new alkaloid ; but atropine, hyoscyamine, and hyoscine occur in the root in varying proportions, so as to suggest that the conditions of growth and the time of collection essentially influence the relative quantities of the alkaloids. Professor Schmidt is even inclined to think that under certain conditions these three alkaloids may be converted one into another in the plant, and in support of this he recalls Professor Ladenburg's statement that when tropine and tropic acid, derived from the decomposition of hyoscyamine, are recombined, the product is not the original alkaloid, but its isomer atropine. Hyoscyamine was also found in the root of a cultivated species, *Scopolia Hartnackiana*, and both roots yielded "scopoletin," a fluorescent compound, identical with the methyl esculetin occurring in belladonna-root. Professor Schmidt also disputes the basic character of the substance hitherto known as "rotoine," which he thinks is more likely a compound of alkali, with a fatty acid very rich in carbon,—a soap, in fact,—and ought, therefore, to be struck off from the list of alkaloids.—*Pharmaceutical Journal and Transactions*, October 1, 1887.

IODOFORM AS AN ANTISEPTIC AND ANTIPARASITIC.

The following abstracts are taken from the *Centralblatt für Chirurgie*, September 10. The "iodoform question" is one of great interest to all surgeons, and should be definitely settled. We hope that these rather contradictory views will stimulate experimenters on this side of the water, and that we shall be able to publish the result of their observations.

KÖNIG, in the *Therapeutische Monatshefte* for April, 1887, gives an interesting account of his experiments. His conclusions are based on years of careful observations, and he considers iodoform of great value as a dressing for wounds. He states that it has little or no bacteria-killing properties, and also that it is not a specific against tuberculosis, as it does not hinder the formation of tubercle-bacillus. The only effect it has on a healthy wound is to dry it up more or less and to promote healing, and it also renders the surface of the wound proof against the further growth of bacteriæ. Other remedies can ably take the place of iodoform.

C. BING also agrees with König as to the "drying properties" of iodoform. He experimented with iodoform dissolved in the oil of almonds on the mesenterium of a frog, and found that it checked to a great degree the extravasation of the colorless blood-corpuscles.

According to his views, the drops of fat on the surface of the wound dissolve the iodoform sufficiently to cause it to act as "iodoformized oil." It is the iodine in vapor form that checks the exit of the colorless corpuscles from the vessels (*Therapeutische Monatshefte*, May, 1887).

G. DE RUYTER, in the *Archiv für Klin. Chirurgie*, vol. xxxv., Part 1, gives the results of a long series of experiments, partly conducted in the Hygienic Institute and partly in the Imperial University clinics of Berlin.

He speaks of iodoform as "a protective filter which guards against the approach of bacteriæ." On surfaces where they already exist the iodoform will cause their formation to be more gradual.

The bacillus of green pus and the micrococcus prodigiosus remain unchanged by iodoform.

In contradiction to this, however, it has been shown that the drug does in a measure check their formation and may sometimes render them harmless.

Ruyter says that of still greater importance are the *solutions* of iodoform. A solution of ether (two parts), alcohol (eight parts), and iodoform (one part) is a superb antiseptic. In the above solution, after standing for six weeks, the author found one per cent. of free iodine. This solution not only checks the formation, but also kills the bacteriæ.

In healthy wounds which had been disinfected with the ether-alcoholic solution of the drug, the bacteriæ when introduced into the wound died in one and a half minutes ; in wounds where they already existed the solution acted slower, as the bacteriæ lived for two to three days. His results prove that this solution of iodoform has a right to be classed among the leading disinfectants.

DR. H. SATTLER (Prague) writes of a long list of experiments with iodoform and iodol (*Fortschritte der Medicin*, vol. v., 1887).

The friends of iodoform cannot be grateful enough for the publication of his results. He confidently states that the question is not whether iodoform is an antiseptic ; that has been proved beyond all doubt. The only question is as to how it acts on the tissues and secretions and micro-organisms. His results are similar to De Ruyter's, and he further states that only those micro-organisms

which come in direct contact with the drug are affected by it; those at a distance remaining unaffected. This accounts for the contradictory results of various experimenters.

The author concludes by saying that, on account of its sure effect and non-irritant properties, iodoform occupies a place among antiseptics which cannot be taken by any other drug.

The same applies to iodol. It is as active an antiseptic as iodoform. He prefers powdered iodoform to iodol on wounds, as the latter slightly irritates them.

The author considers iodol-vaseline of far greater value than iodoform-vaseline, although the former may cause slight burning to the sensitive parts.

BAUMGARTEN, in a lecture delivered before the Medical Society of Königsberg, denies the antiparasitic properties of iodoform (*Berlin. Klin. Wochenschrift*, No. 20, 1887).

Having injected some tubercle-bacilli into the trachea, a tubercular knot formed where the injection had been made, although the canula had been inserted through a thick and wide plaster of iodoform which covered the spot. When, however, the canula was inserted and withdrawn through a wad of cotton which had been soaked in a one per cent. solution of corrosive sublimate, no infection of the puncture took place.

Again, small flakes containing the bacilli were well mixed with ten to forty times their quantity of iodoform. This mixture was then introduced into the subcutaneous cellular tissue of rabbits and guinea-pigs. In every case the micro-organisms grew quickly in connection with the iodoform.

In the same manner Kunze made a series of experiments, all of which resulted unfavorably for iodoform.

THORKILD ROVSING (Copenhagen), in the *Fortshritte der Medicin*, vol. v., 1887, has endeavored to answer the question, Has iodoform any anti-tuberculous properties?

He draws the following conclusions from his experiments on the eyes of rabbits with "pure tubercle" and "tubercle treated with iodoform":

1. Iodoform has no effect on the life of the bacillus, whether in the body or in living tissue or under the influence of light.

2. Iodoform acts as an irritant on the tissues, and thus makes the surface more favorable for the growth of the bacillus.

The experiments of Rovsing were not very extensive, and so—after reading the results of other authorities, such as De Ruyter—it would be well not to draw any too positive conclusions from the above.

P. BRUNS and WANWERK (in the *Mittheilungen aus der Chirurg. Klin. zu Tubingen*, vol. iii., Part I., 1887) went through a series of experiments with iodoform on abscesses. They worked with the microtome and microscope, and their results are highly gratifying. They describe the action of iodoform histologically as follows:

"The spindle-shaped cells grow rapidly, and a healthy, highly vascular, granulating tissue forms, which gradually lifts off the tuberculosed and necrosed parts. After the disappearance of the bacilli the vessels become obliterated, and the granulations either disappear or else are changed into connective tissue with the spindle-cells; exudation ceases; the contents of the abscess are absorbed, and the walls shrink together and cicatrize.

A. LÜBBERT (Dresden), in the *Fortschritte der Medicin*, vol. v., 1887, writes of forty-three experiments on animals, and comes to the conclusion that iodoform has no effect on the growth of the staphylococcus.

If iodoform is being used a second infection is more difficult, on account of the drying properties of the drug.

We need go no further into Lübbert's experiments, except to say that his results are in exact opposition to those of Sattler.

A POWERFUL DEODORIZER FOR IODOFORM.

Oil of turpentine is a powerful deodorizer for iodoform. A little rubbed on the hands will completely remove the smell from them. The hands should be afterwards washed in soap and water. In the same manner spoons and any utensil may be freed from the smell of iodoform.—*Le Progrès*, Geneva, August 20, 1887.

A CASE OF IODOL-POISONING.

PALLIN writes of a case of iodol-poisoning in the *Hygeia* (Swedish) for May, 1887:

The patient, a man aged 20, was suffering from necrosis of the clavicle. In the evening of the same day the patient became dizzy and violent, and tried to tear off the bandage. The next day the temperature was up to 39° C., and the pulse 136, small and irregular; vomiting and apathy. Albumen and a small quantity of iodine was traced in the urine. Although the dressing was at once changed,

the iodol washed away and bismuth substituted, the symptoms of poisoning remained for four days, and iodine could be traced in the urine for two weeks.—C. Lanenstein, in the *Centralblatt für Chirurgie.*

DIOXYNAPHTHALENE.

The search for new remedies among the carbon compounds does not at present show any sign of relaxation, and one of the latest to be credited with useful therapeutic properties is dyoxynaphthalene, $C_{10}H_6(OH)_2$. There are at least six compounds known that have the composition of dioxynaphthalene, or, as it is sometimes written, dihydroxynaphthalene, but the melting-point mentioned (186° C.) is that of one prepared by fusing naphthalene disulphonic acid with potassic hydrate. According to Dr. Lépine (*Archives de Pharm.*, September 5, p. 403), this compound, administered to asthenic persons in 25-centigramme doses, with a maximum daily dose of 1 gramme, has a remarkable effect in imparting energy, though without augmenting reflex action or increasing muscular power. Large quantities, however, appeared sometimes to produce weakening effects, and in two cases cyanosis followed the administration of one gramme. As the hydroxyl group has been credited with the property of augmenting the energy of a radical with which it may combine, and since the formula of dioxynaphthalene differs from naphthol ($C_{10}H_7$, HO) in containing another HO group, Dr. Lépine was induced to experiment as to whether there might be any analogy in the physiological action of the compounds. His results were affirmative, and Dr. Lépine says that β-naphthol is capable of producing the same asthenic effects as dioxynaphthalene, but the dose required (2 or 3 grammes) causes irritation to the digestive and other organs.—*Pharmaceutical Journal and Transactions*, October 1, 1887.

THE USES OF NITRO-GLYCERIN.

The value of nitro-glycerin in medicine is now greatly appreciated. It is, however, important that we should be thoroughly acquainted with its properties. Its action in dilating the arteries is of great value, since it not only affects the large and also smaller arteries, but also the capillaries. We might regard its actions in a twofold light: first, it enlarges the arteries which have been contracted, and so transfuses the blood into these almost bloodless vessels; second, in doing so it relieves those vessels which have been surcharged with blood, and thus its action might be compared with that of bleeding.

Nitro-glycerin is useful in angina pectoris, neuralgias, and the like; also in sea-sickness, fainting fits, palpitation, etc. As these ailments all occur in paroxysms, the object in using the drug is to give immediate relief. Its continued use will be found of service in Bright's disease, fatty degeneration of the heart, etc., and in all similar ailments where symptoms of an irregular distribution of the blood are apparent.

Dr. Trussewitsch, in an article on the subject in the *Centralblatt für die gesammte Therapie*, says that the best way to judge the size of the proper dose is by carefully watching its effect on the pulse. He states that the more contracted the radial artery is the sooner it will dilate under the drug, and the accompanying effects will be good; the fuller the pulse the less effect nitro-glycerin seems to have, and the weaker and more yielding the pulse the easier it will be to cause an undue and general effect on the whole organism.

Therefore, in cases of the first-mentioned kind, normal doses (that is, not more than 1 drop of a one per cent. solution) will be all that is needed. In the second kind one may give even as much as 2 drops with safety, not however, without first having tried the effect of the normal dose. In cases of the third kind only ¼ or ½ drop may be given at first, so as to avert the disagreeable symptoms which might be caused by a "hyperdosis."

These rules, of course, apply only to those who have not been using the drug habitually, and in weak, nervous, poor-blooded, and timid patients it is always advisable to begin with very small doses.

Dr. Trussewitsch further says that organic heart-trouble does not by any means contraindicate its use, he having used it with good results in angina pectoris, which was complicated by valvular trouble and dilatation of the aorta; also in cases where the heart was enlarged.

The greatest caution, however, must be taken when giving the drug where there is general atheromatosis of the arteries.

Under no circumstances should the dose ever be increased above 2 drops of the one per cent. solution, and even in angina pectoris the increase of dose must be very gradual. If in long-standing cases one begins to find even the increased dose losing its effect, it

will be well to discontinue its use for two weeks or so, at the end of which time the normal dose will be found to have its original effect again. This peculiarity of nitro-glycerin is of great importance, since, even when its use becomes habitual, any undue increase of dose will be found unnecessary.

The best methods for administering the drug are either to drop the solution on the tongue by means of a pipette, or else to have it put up in small tablets of chocolate. The practice of giving it in water is not advised, as it gives bad therapeutic results.

The author also finds that it combines well with other remedies. In combination with digitalis it acts well on patients with weak and irregular heart-action, with cocaine or morphine for neuralgia, and sometimes even with nitrite of amyl in angina pectoris.

The drug should be perfectly pure, as when it is poorly prepared it is utterly worthless.

THE TREATMENT OF DIPHTHERIA.

Dr. Ad. Dumas, in the *Bulletin général de Therap.*, says that there is no remedy for fully-developed diphtheria, and therefore it is necessary to check the disease in its infancy.

When healthy children are living near others suffering from diphtheria, they are naturally in danger of contracting it themselves. Therefore the greatest watchfulness is necessary, so as to be able to cope with the enemy at his first appearance.

Dr. Dumas states that he considers it advisable to treat a child antiseptically even before there is any appearance of the disease.

He advises a one per cent. solution of kalium iodide with 8 drops of tincture of iodine to be given daily; also in the night, disturbing as little as possible the sleep of the child.

This treatment should be continued for about a week.

True, the writer's experience is limited, he having based his conclusions as to the value of this preventive upon the observation of only nine cases.

PULSATILLA.

As pulsatilla contains a sharp, active principle which is lost when dried, it is necessary to use only fresh roots in preparing the drug. The roots also are more active than the leaves.

M. S. Vigier says that the only useful preparation is the so-called "alcoholative" (1 to 1000 alcohol, 90°). The nauseous taste and smell of the above are greatly reduced by using the following formula:

℞ Syr. fol. naphæ, 95 grms.;
Alcoh. rad. anem. rec., 5. M.
S.—1 to 3 teaspoonfuls daily in water.

The distillate of anemonin water or any solution of anemonin is very sharp and active. After some time, however, it loses its sharpness and disagreeable odor, and precipitates white leaf-like crystals of anemonin, which are tasteless and odorless.

The formula $C_{15}H_{12}O_6$ has taken up an equivalent of O, and has changed into anemonic acid.

Vigier says it should not be considered poisonous, himself having frequently taken 1 grm. (15 grs.) without effect.

He gives the following formulæ as the best in using anemonin:

℞ Anemonin, .01;
Sacchar., .09.
For 1 powder, to be taken two to four times daily.

Or

℞ Anemonin, .01;
Pulv. liquid., .02;
Syrup., q. s.
For 1 pill, to be taken two to four times daily.

The above formulas have also strong anti-catarrhal properties.

ANTIPYRIN AS A NERVINE.

The value of antipyrin in nervous diseases is beginning to be widely acknowledged. Demme, in many experiments upon animals, saw its marked effect both on the muscular and vaso-motor nerve-centres. Further researches of other practitioners show various results. Thus, F. Müller (*Centralb. für Klin. Med.*), when using it as an antipyretic, observed sleepiness and incontinence of urine to be caused by it; May (*Deutsche Med. Wochenschrift*) observed vomiting, sweating, and numbness; Kaatzer (*Deutsche Med. Wochenschrift*), exanthema and sleepiness; and Steinacker also speaks of its sleep-producing properties. Ungar gave antipyrin with good results to a patient suffering with hemicrania in doses of 1 gramme (15 grs.), although he said its actions were not always certain. Many other

writers speak of its good effects in nervous headaches. Robinson advises its use in doses of about 1.32 gramme (20 grs.) in Vichy water, and this dose to be repeated in two hours if the pain has not increased.

Dr. Otto Seifert, in the *Centralblatt für die Klinische Medicin*, says that his observations with antipyrin in hemicrania were not very favorable. He cites two cases. First, one of a woman, aged 24, who was subject to frequent and severe attacks. These he completely checked three times with 1 gramme (15 grs.) doses of antipyrin, but at the fourth time gastric irritation became apparent, and he was forced to discontinue its use. The second case was that of a woman, aged 21, who suffered from attacks of hemicrania, which came on every two or three weeks. All other remedies, such as quinine, caffeine, etc., had been tried without avail. After a single dose of antipyrin disagreeable symptoms at once began to manifest themselves,—great pain in all the limbs, dizziness, headache, etc ,—so that, indeed, the effects of the drug were more painful than the disease itself. Antifebrin, on the other hand, was given with very good results and without any disagreeable accompanying symptoms.

It would therefore appear that, whether or not fever exists, antipyrin is oftener accompanied with unpleasant symptoms than antifebrin. It is, however, especially noticeable in fever-patients.

Antipyrin has been prescribed in neuralgia of the trigeminus by Drs. G. Sée and Mendel. The results of Dr. Seifert here were more satisfactory than in hemicrania. In three cases of supraorbital neuralgia, doses of 1 gramme (15 grs.) caused complete disappearance of pain in an hour, and its continued use for several days resulted in recovery. There were no disagreeable symptoms accompanying its use.

Dr. Seifert also speaks of its efficiency in allaying the pain of tumors of the brain and several other cerebral affections; also in heart-troubles, such as stenocardia, aneurisms, angina pectoris, etc., although in such cases antifebrin can always ably take its place. Mendel also speaks of its value in epilepsy and in several painful affections of hysterical patients.

Whether antifebrin, on account of its cheapness, and the lesser number of its accompanying symptoms, will take the place of antipyrin in nervous diseases, will soon be settled, as at present the subject is being largely discussed in all the leading medical journals.

ARBUTIN.

Arbutin is a specific body, which is found in the residue of the *fol. uvæ ursi*. It is a glucoside, and is contained in the leaves in connection with gallic and other acids. When heated with dilute sulphuric acid it is split into the glucoside, and sugar on the one hand and hydrochinon and methyl hydrochinon on the other hand. Both of the aromatic products are very active, signs of poisoning appearing in animals after doses of 1 gramme (15 grs.) of hydrochinon.

When introduced into the stomach, arbutin is divided into the minutest particles, but is found unchanged and almost in its entire quantity in the urine. A pupil of Kunkel took 9 grammes of arbutin without any unpleasant effect, but the drug was easily traced in the urine. It seems that the drug is almost completely thrown off with the urine.

The percentage of arbutin in the dry leaf is about five per cent.—J. Kunkel, "Ueber das Arbutin," *Centralb. für die Kün. Med.*

DAPHNANDRA REPANDULA.

A Queensland plant recently examined by Dr. Bancroft is *Daphnandra repandula*. The bark of the tree has a transient bitter taste, and when first removed from the tree it has a yellow color on the inner surface, which changes to metallic black on exposure to the air, but becomes yellow again when dry. Infusions of the bark are of a yellow color, and remain free from microscopic organisms when kept. The extract of the bark does not appear to contain either gum or resin, but is rich in alkaloids. The extract is very poisonous, 1 grain being a fatal dose for a frog, and 10 for warm-blooded animals. The alkaloids contained in the bark are colorless when pure and crystalline. The active one is easily separated from the others, being soluble in water. Its poisonous action is chiefly due to its action on the heart. To some extent it is antagonistic to strychnine. The poison powerfully affects fish, mollusks, and infusoria. When applied topically to voluntary or involuntary muscles it paralyzes them rapidly. Dr. Bancroft has remarked that it also retards the development of septic organisms and that it will deodorize putrid meat. It checks the growth of yeast and kills some water-plants. Another species, *D. micrantha*, which is a shrub and also grows near Brisbane, possesses a similarly active principle.—*Pharm. Journ. and Trans.*, October 1, 1887.

THE TREATMENT OF CARBUNCLE BY INSERTING BARS OF CAUSTIC CHLORIDE OF ZINC.

At the meeting of the Société de Médecine of Paris, on June 11, M. POLAILLON (*London Med. Record*, October 15, 1887) made an interesting communication on the treatment of carbuncle by the insertion of bars of caustic chloride of zinc. M. Polaillon bases his treatment on the fact that carbuncle is caused by a microbe, and that incision by a bistoury is sometimes dangerous, as liable to open out numerous roads to inoculation and septicæmia. When the inflammation does not give way to simple treatment by baths and emollients, it is generally necessary to have recourse to the bistoury, or, better still, the thermo-cautery, which presents less danger; but M. Polaillon prefers employing caustics, which entirely destroy the germs in the purulent focus. For that purpose he chooses Canquoin paste, chloride of zinc, in the form of sticks or bars, hardened by desiccation in a furnace. When the carbuncle is suppurating, and when the skin is perforated at several points, he introduces through these apertures bars of caustic, thrusting them easily down into the focus, so as to fill it with these bars. At the end of a few hours the focus forms one solid mass, separated from the healthy tissue by a zone of cauterized tissue; and in a few days the eschar is eliminated, leaving in its place a granulating surface, which rapidly heals. When the focus is beginning to form, and shows itself only by some white spots on the surface of the skin, he makes a sufficient number of openings with the bistoury or the thermo-cauterizer to introduce the bars of caustic, and proceeds as above. When the carbuncle is only in its first stage, and there is no suppuration and but little fever, M. Polaillon simply applies emollients until the affection has progressed sufficiently for him to apply the caustic bars. But if the carbuncle is accompanied by intense febrile symptoms, if it is voluminous, he does not hesitate to treat it at once with bars of Canquoin paste. In all cases he covers the surface of the carbuncle with a thick layer of compresses, soaked in a carbolic-acid solution, or, better still, with a solution of sublimate at one per one thousand, which he prefers. He applies a linseed-meal poultice, made with the solution of sublimate, and thus obtains the antiseptic effect of the sublimate and the emollient effect of the poultice. This treatment is rather painful for two or three hours, but has the advantage of at once transforming a serious infectious disease into a simple wound. The results obtained by M. Polaillon with this treatment of carbuncle were excellent. Out of forty-eight cases brought to him, he had forty-seven cures and one death. This was a man of 48 years of age, highly glycosuric, and who had already been very irregularly treated at home during a month. He had an immense carbuncle in the back, and notwithstanding every care and energetic antiseptic treatment, diffuse inflammation carried him off one week after entering the hospital. The average duration of this treatment is twenty-one days only.

TERPINHYDRATE AND TERPINOL.

RABOW (*Therapeutische Monatshefte*, August, 1887) has not yet been able to form a definite opinion on the value of terpin and terpinol as remedial agents, but he gives a good account of these drugs and a *résumé* of the latest experience as to their utility.

If ol. terebinth. and water are left to stand for some time, crystalline needles occasionally form on the walls of the vessel. They consist of terpin, or, more correctly, of terpin-dihydrate, $C_{10}H_{16} - 2H_2O + H_2O$. A monohydrate, $C_{10}H_{16}H_2O$, is obtained from French turpentine oil; this is a colorless oily fluid.

According to B. Fischer, *Neuere Arzneimittel*, p. 137, terpinhydrate is prepared in the following manner: A mixture of four parts rectified oil of turpentine, three parts alcohol (80° C.), and one part nitric acid is left to stand for a few days in a large flat porcelain dish; the crystals collected in the fluid are then taken out and left to dry; they are then pressed between filter-paper and recrystallized out of a ninety-five per cent. solution of alcohol.

Terpinhydrate forms rather large rhombic crystals; they are colorless and odorless, and have a faintly-aromatic taste. It is with difficulty soluble in cold water and turpentine oil, and more easily in hot water, alcohol, ether, and carburetted hydrogen.

The advantageous results obtained from turpentine in lung- and kidney-affections, by Lépine, Sée, Masius, and Ferreira, have already been recorded in the *Medical Chronicle*, October, 1885, and January and July, 1887. Rabow (as quoted by the *Medical Chronicle* for October, 1887) gives the following formulæ for the administration of the drug,

which may be prescribed either in pills or solution :

℞ Terpini hydratis, gr. xlv ;
Sacch. alb.,
Mucil. gum arab., q. s. M.
F. pil. No. 30.
S.—1 pill three times daily.

℞ Terpin. hydr., gr. cl ;
Spir. vin., ℥v ;
Aq. destill., ℥iii. M.
S.—1 tablespoonful t. d.

℞ Terpin. hydr., ℥ii ;
Glycerin (at 30° C.),
Sp. vin. (at 95° C.),
Syr. simpl., aa ℥iiss.

Terpinol is a colorless oily fluid, which is produced when terpin is boiled with diluted mineral acids. It is insoluble in water. It is a stimulant to the bronchial mucous membrane, the secretion of which it renders less viscid. When taken internally it is excreted by the lungs. It does not disturb the stomach unless given in large and long-continued doses. It has been recommended as an expectorant in lung-diseases, and, according to Morra, is more effectual than terpin. It has no visible effect on the kidneys and the nervous system. It may be given in pills or capsules, or it may be injected into the rectum.

Dr. Lazarus, of Berlin, considers pills the best form of administration. 20 to 30 grains can be given daily in this form without discomfort. He believes that only in such full doses can the therapeutic influence of the drug be relied upon. It is useful, he says, when the bronchial mucous membrane is much irritated and the secretion is small and tenacious. This condition is not infrequent in chronic catarrh, in emphysematous and phthisical patients. The secretion is increased, and becomes more fluid ; the irritation correspondingly diminished. In a week or a fortnight the catarrhal symptoms usually disappear.

Haussmann, of Merau, does not report quite so favorably, but finds that the patients bear terpin much better than turpentine. The dose is from 2 to 15 minims. Whether terpinol and terpin are as useful in diphtheria and whooping-cough as turpentine oil, Rabow says has not yet been ascertained. The terpin is to be dissolved in the warm glycerin. The mixture of spirit and simple syrup is to be added to this solution and shaken. Each tablespoonful contains seven and a half grains of terpin.

PHARMACEUTICAL NOTES ON SOME SYNTHETICAL COMPOUNDS RECENTLY INTRODUCED INTO MEDICINE.

Although we have already laid before our readers abstracts of the more important papers appearing on the compounds noted below, it seems worth while to give again a summary in a condensed form of the more important characteristics of each of these new remedies, with special reference to their mode of administration. In accomplishing this we make use of the paper read by MR. H. HELLING before the British Pharmaceutical Conference, reported in the *Pharmaceutical Journal and Transactions* for September 24, 1887.

Acetphenetidin, paracetphenetidin, $NH(CO CH_3)C_6H_4.OC_2H_5$.—This antipyretic has only been in use for a short time, but the results hitherto obtained with it are described as excellent. Hinsberg and Kast have shown that a dose of 3 to 8 grains is able to reduce the temperature of the human body by 3.6° F., and the experiments carried out in the clinic of Professor von Bamberger, of Vienna, have only tended to confirm the favorable accounts of the discoverers. It appears to be perfectly devoid of secondary effects and fully able to bear comparison with all other febrifuges.

It is a grayish-white crystalline powder, without smell, producing a slightly pungent after-taste ; it is practically insoluble in water, but dissolves readily in alcohol. The melting-point is at 275° F. It is advantageously prescribed in the form of powders containing the above-mentioned dose, since from its tastelessness it is readily taken by patients.

Amylene hydrate, tertiary amylic alcohol, dimethyl ethylcarbinol,

$$\begin{matrix} CH_3 \\ CH_3 \\ C_2H_5 \end{matrix} > C.OH.$$

Only a few weeks ago this compound was recommended by Professor Jolly and Von Mehring as a soporific, in which class of remedies it appears to have taken a prominent place. Before applying it to patients numerous experiments on animals had been carefully carried out. A dose of one drachm is sufficient to produce sleep for six or eight hours. No unpleasant secondary effects are recorded.

The remedy is given in water (in which it is soluble in the proportion of 1 to 12), with a little juice of liquorice.

Amylene hydrate,
Liq. glycyrrhizæ, aa ℥i ;
Aq., ad ℥i.
S.—To be shaken before use.

It is also administered in capsules of gelatin.

It is a clear fluid, with an odor reminding one slightly of camphor; it is soluble also in alcohol. Specific gravity, 0.812 at 53.6° F.; boiling-point, at 216° F.

Antifebrin, acetanilide, phenylaseetamide, $C_6H_5NH.CH_3CO$.—Since the first experiments with this valuable remedy, performed by Drs. Cahn and Hepp in Strasburg, antifebrin has been carefully studied by others, and with the same satisfactory results. It possesses the advantages over other remedies of this class of being low in price, and, moreover, the dose is small, 2 to 10 grains once, twice, or, at most, three times a day, sufficing to produce a considerable reduction of temperature in cases of typhoid fever, pneumonia, also in erysipelas and acute rheumatic gout. It is given in powders as well as in solution; for the latter mode of administration it will be found most advisable to dissolve it in brandy, subsequently adding a little water and syrup. The following formula is given as an example:

Antifebrin, ʒi;
Brandy, ʒivss.
Dissolve, and add
Distilled water,
Simple syrup, āā ʒvi.
One tablespoonful, to be taken as directed.

The remedy is thus rendered very pleasant to take, and the patients express no aversion to it.

A good preparation should be of pure white color, and form moderately large crystals, which are but very sparingly soluble in cold water, rather more readily in hot, and easily in alcohol. Antifebrin melts at 233.6°, and boils at 563°.

Antipyrin, oxydimethylchinizine, $C_{10}H_9CH_3.N_2O$.—Antipyrin may fairly be considered the most popular of modern antipyretics. The dose varies from 15 to 30 grains twice, three, or more times a day. For children, 3 to 12 grains will be found to be sufficient. It is of great value in all febrile diseases, reducing temperature very promptly. Of late it has also been applied in subcutaneous injection as a local anæsthetic. In some cases a bright pink rash, like nettle-rash, will suddenly appear during treatment; this is considered to be of no importance, as it causes no inconvenience, and soon disappears.

Antipyrin is readily soluble in water and alcohol; it possesses but little flavor, and that not unpleasant, and is, therefore, adapted for administration in solution. It thus possesses great advantages over quinine, especially in treating children, who take it very readily if mixed with a little syrup. Thus:

Antipyrin, gr. lxxx;
Simple syrup, ʒi;
Water, add to ʒiv.
Two teaspoonfuls for a dose.

This mixture is almost free from bitterness, and children do not at all object to it.

It crystallizes in colorless laminæ, which melt at a temperature between 230° and 254.4° F.

Antithermin, phenylhydrazinlevulinic acid, $CH_3C(C_6H_5N-NH)CH_2-CH_2COOH$, has been recommended as a febrifuge, but, although it is now obtainable in the market, details are still wanting as to dose and effect. It forms large colorless crystals of a slightly bitter taste, which cause an unpleasant grating when ground between the teeth. It is insoluble in water, and but sparingly soluble in alcohol. The most suitable form for administering antithermin is the pilular.

Aseptol, acidum sozolicum, orthophenolsulphonic acid, $C_6H_4OHSO_2OH$.—By aseptol we understand a thirty-three and one-third per cent. solution of orthophenolsulphonic acid. It is almost odorless, but faintly suggests carbolic acid, and is reported to possess the antiseptic properties of the latter and of salicylic acid, standing, as regards strength, midway between them. Its superiority lies in the possession of antiseptic with poisonous or irritating properties, so that it is especially adapted for abdominal surgery and for ophthalmological operations. Sozolic acid is readily soluble in water, alcohol, and glycerin. It is applied in a solution of three, five, or ten per cent., to which strength the stronger solution can be reduced by dilution with water.

Betol, salicylate of β-naphthol ether, $C_6H_4OH.COO.C_{10}H_7$.—This remedy is one of the very newest and analogous to salol. It is applicable, therefore, in all those cases in which the latter is found to be of use,—viz., rheumatism, cystitis, etc. The dose is given as 5 to 8 grains in some cases of intestinal catarrh. As it is not a phenol compound, betol possesses the advantage of being freer from detrimental properties than salol.

It forms small, white, resplendent crystals, is almost devoid of taste, and, being insoluble in water, is best dispensed as a powder or in compressed tablets, or in pills made up with liquorice-juice and powder, each contain-

ing two and one-half grains of betol. It is soluble in alcohols, as also in fatty oils, and is, therefore, well adapted for being worked up with butter of cacao into pencils for the treatment of gonorrhœa. These may be prepared by melting four parts of ol. theobromæ, and adding to the warm liquid one part of betol. This readily dissolves in the fat, and the mixture is allowed to partially cool, when it is poured into moulds. The finished product contains, of course, twenty per cent. of betol. The melting-point of betol is 203°.

Hypnone, acetophenone, $C_6H_5COCH_3$.—By means of 3- to 8-grain doses of this very powerful soporific a profounder sleep is produced than that caused by chloral hydrate. Hypnone possesses an agreeable aroma, somewhat resembling a mixture of oil of bitter almonds and neroli, but its action on the mucous membrane of the mouth is almost caustic. It is dispensed, therefore, in capsules of gelatin, each of which contains one grain of the remedy, combined with ten of almond oil, to prevent any risk of unpleasant effects.

It is a colorless fluid, sparingly soluble in water, more readily so in alcohol, of the specific gravity 1.032 at 59° F., the boiling-point being 410° F.

Methylal, dimethylether of methylene, $CH_2(O.CH_3)_2$.—Methylal is a soporific of very recent date. It is administered in doses of 20 to 25 grains in water, with a little syrup.

Thus:

Methylal, ʒi;
Syr. orange-flower, ℥ss;
Water, ℥i.
One tablespoonful for a dose.

It has been applied externally as a local anæsthetic dissolved in oil, or as an ointment, with lard as a base. Both forms are made to contain fifteen per cent. of methylal.

It is a colorless, ethereal fluid, which smells like a mixture of chloroform and acetic ether, and tastes pungent and aromatic; it is readily soluble in water as well as in alcohol; the specific gravity at 59° F. is 0.855; it boils at 107.6°.

Naphthalin, $C_{10}H_8$.—To most fungi naphthalin has been found to be a powerful poison, and has proved very valuable as an antiseptic, being applied in the same manner as iodoform. Professor Rossbach, of Jena, first administered it internally in cases of acute and chronic enteric catarrh, in typhoid fever, and acute gastro-intestinal catarrh. It has since been extensively applied, but not with absolutely uniform results. It is given as a powder in doses of 2 to 8 grains, to which a drop of oil of bergamot is added to obliterate the peculiar smell of tar belonging to it, which make it otherwise impossible for some patients to take it. For example, the following formula may be adopted:

Naphthalin, gr. xxx;
Sacch. alb., gr. xxx;
Ol. bergam., gr. i.
Make a powder and divide into ten doses, one to be taken three times a day.

Naphthalin is a crystalline body, forming colorless, resplendent scales; it tastes pungent, is insoluble in water, but sparingly soluble in cold alcohol and fatty oil, but readily if these agents are heated. The solution in oil and the ointments should be made to contain ten per cent. of naphthalin, which must be added to the warm fatty matter. Melting-point, 176° F.; boiling-point, 424.4°.

Naphthol, β-naphthol, isonaphthol, $C_{10}H_7OH$.—As a substitute for tar preparations, naphthol has been applied to the skin with very good results, especially in psoriasis and other chronic affections. A two to five per cent. solution in alcohol is the usual form of application, but it can also be made up into ointment containing three to twenty-five per cent. Internal administration of this compound was attended with toxic effects, and has, therefore, been discontinued.

It crystallizes in resplendent scales, has an aromatic odor, is slightly soluble in hot water, readily so in alcohol and fatty oil. A very good ointment can be made by adding one part of naphthol to ten of melted lard, and well stirring. The substance dissolves without much difficulty, and forms a white, smooth product.

Naphthol melts at 253°, and boils at 546.8°.

It should not be confounded with naphthalin.

Salol, phenylether of salicylic acid, $C_6H_4OH.COO.C_6H_5$.—This remedy appears to give the greatest promise of future importance, for, in the short time that it has been known, it has done very good service as a febrifuge and an antirheumatic, being administered in doses of 15 to 30 grains, two or three times a day; also as a gargle, ʒii. Thus:

Salol, ʒii;
Spirit. vin., ℥iv.
A teaspoonful to a glass of warm water for stomatitis and ulcerations of the mouth and pharynx.

A salol mouth-wash is also very much recommended, and may be prepared as follows:

Take salol, gr. xl; dissolve in ʒiv of a suitable spirituous dentifrice liquid. Half a teaspoonful to be used in a glass of water, with which it forms a milky emulsion.

For chronic forms of diphtheria it is reported to have more powerful effect than solutions of chlorate of potassium or salicylic acid. It is also applied, worked up with butter of cacao into pencils, as an antiseptic. These are prepared in a similar manner to those of betol, before mentioned.

Salol is a white, crystalline powder, of a mild aromatic odor; it is insoluble in water, but soluble in alcohol. The melting-point is 108° F.

Thallin, $C_9H_{10}N(OCH_3)$.—Thallin is employed either as a sulphate or tartrate. It is rapidly obtaining a recognized position in the materia medica, for it is a reliable and powerful antipyretic, applicable in all kinds of febrile conditions. 3 to 8 grains in pill are considered a suitable dose. It is also applied externally, especially lately, with great success for injections in cases of acute and chronic gonorrhœa, for which it is prescribed in aqueous solutions containing one drachm of thallin salt in ʒvi.

Salts of thallin are crystalline powders, not quite pure white in color, of a bitter and intensely aromatic taste, and of a peculiarly persistent odor, which is similar to that of cumarin; they are readily soluble in water, but far less so in alcohol.

Urethan, ethyl of urethan, $CO(NH_2).OC_2H_5$.—As a mild hypnotic, urethan is very useful, being administered in doses of from 15 to 40 grains, either as a powder or in solution, with a little syrup as a corrective. Thus:

Urethan, ʒii;
Syr. simpl., ʒi;
Aquæ, ʒiii.
Two teaspoonfuls for a dose.

It does not produce a comatose condition like chloral hydrate, but tends to induce a healthy natural sleep in cases where this is impeded by other causes.

It is a crystalline body, of a mild ethereal odor, tastes somewhat like saltpetre, is soluble in water and alcohol, and melts at about 120° F.

THE EMPLOYMENT OF ANTIPYRIN IN ACUTE RHEUMATISM.

Dr. Bernheim publishes a paper with the above title (*London Medical Record*, October 15, 1887) in which he gives notes of thirty-four cases, comprising nineteen of acute and subacute rheumatism, eleven of apyretic rheumatism, two of gonorrhœal rheumatism, and two of neuralgia. In each case the daily dose of antipyrin varied from 2 to 8 grammes (30 to 120 grains), the treatment ceasing as soon as the pain was relieved. The drug was given in a simple solution. No untoward or disagreeable symptoms were noticed beyond profuse perspiration, which occurred in sixteen out of the thirty-four cases. Nausea, followed or not by vomiting, was complained of in four cases, but when gastric discomfort was feared the drug was given preferably hypodermically or by injection. Of these thirty-four cases marked relief was afforded in twenty-eight; in only six cases was the effect uncertain or incomplete. In examining the effect of the drug in the different forms of the disease, it was successful in eighteen out of nineteen cases of acute rheumatism; in eleven cases of apyretic rheumatism only twice was its administration of doubtful value, and even in these some relief was afforded, although they were undoubtedly cases of chronic rheumatism. Its effect on gonorrhœal rheumatism was less marked, and it was not more successful in a case of sciatica and one of supra-orbital neuralgia. The conclusion is that antipyrin is particularly indicated in true rheumatism, whether febrile or apyretic. The relief of pain experienced in such cases is prompt: within twenty-four hours the pain, swelling, and tenderness of the joints were less, and the pain soon disappears altogether. Dr. Bernheim, however, denies that antipyrin causes the resolution of the local lesions. The fever at once falls, but the relief of pain is not necessarily associated with this, since the same effect follows its administration in the apyretic form of the disease. Out of twenty-seven cases in which the course of the malady could not be followed to its conclusion, in twelve it persisted more than a week after the treatment was begun, varying from eight to sixty-three days; in fourteen its duration was less than a week, and in seven of these fourteen cases the symptoms disappeared after the administration of a single dose of the drug. On the whole, antipyrin cannot be credited with any specific action on the course of the disease, for it in no way prevents the visceral lesions except in so far as the risk of complication is avoided by the period of disease being shortened. It is probably simply a powerful muscular analgesic acting through the nervous system.

DELPHINIUM STAPHISAGRA.

Dr. Vincent Gauthier, in a treatise entitled "Recherches Expérimentales sur le Delphinium Staphisagra et sur la Delphinine," Naples, 1886 (*London Medical Record*, October 15, 1887), propounds his personal botanical, chemical, and pharmacological researches on the *Delphinium staphisagra*.

This plant, belonging to the tribe of the Helleboridæ of the natural order of the Ranunculidæ, had formerly been separated from the genus Aconitum, to which it has recently been reunited by Baillon and other botanists. There are three species of delphinium, or larkspur,—the *D. ajacis*, *D. consolida*, and the *D. staphisagra*, the last being exclusively the subject of the author's investigations. The fruit is formed of four capsules, containing four to five black seeds, known by the name of stavesacre seeds. It is indigenous to the south of France, Italy, Greece, Asia Minor, and the Canary Islands.

The seeds of the *Delphinium staphisagra* contain, according to the researches of Marzius and of Dragendorff (1877), four kinds of alkaloids: the delphinoïdine, the delphinia or delphinine, the staphisagrine, and the delphisine.

The most important of these is the delphinine, which forms an amorphous yellowish powder of resinous appearance. The chemical formula is $C_{22}H_{35}NO_6$. It is insoluble in pure water, but dissolves in acidulated water, in alcohol, ether, and in chloroform.

Only the seeds, which contain the greatest amount of active principle, have been employed for therapeutical purposes. They have been known as a very old remedy in psoriasis and as a vermifuge, in the form of powders, decoctions, infusions, and ointments.

The best form of prescribing delphinine is in granules or pills. The maximal dose is 1 to 10 milligrammes ($\frac{1}{60}$ to $\frac{1}{10}$ of a grain) during twenty-four hours. Trousseau's and Pidoux's doses of 15 to 20 milligrammes ($\frac{1}{4}$ to $\frac{1}{3}$ of a grain) being by far too powerful. Externally it is employed in ointment of one to five parts in ten parts of vaseline.

Dr. Gauthier draws the following conclusions from his experiments on the physiological and toxicological effects of the delphinine.

It is a modificator of the nervous system. It acts on the bulbous portion of the medulla and on the sympathetic nerve.

1. As regards its action on the sensibility, delphinine produces first functional excitation, followed by gradual attenuation, diminution, and final complete but transient extinction of sensibility. The analgesia may in some cases continue for twenty-four hours. The delphinine, in order to produce these effects, acts upon the central fibres of the nerves. The effects of delphinine on the sensibility constitute its most important physiological and its sole therapeutic indication. It is in this respect preferable to aconite, being, moreover, less poisonous.

2. A small physiological dose produces no effect on the motor nerves. A toxic dose, however, rapidly destroys the functions of these nerves.

3. Its effects on the locomotor system consist in inco-ordination and ataxy.

4. The contractibility of the muscular fibres persists until the death of the animal.

5. In acting on the heart and the circulation, delphinine first accelerates the cardiac movements and renders them arhythmic. This is followed by a period of calm, characterized by rhythmic and regular contractions of greater force. Finally, the heart stops during the diastole. These effects are the consequences of the action of the delphinine on the bulbous portion of the pneumogastric nerves.

The alteration of the vascular tension of the blood consists in a transient increase, followed by a more or less marked abatement. The temperature is strictly proportionate to the modification of the tension.

6. Delphinine likewise influences the respiratory functions, causing typical irregularity of the respiratory movements, owing principally to the spasmodic condition of the respiratory muscles (the abdominal and intercostal muscles, and the diaphragma). In consequence of the arhythmic respiration, hypercarbonization of the blood takes place. When the tetanic spasm reaches its maximum the pulmonary movements cease, and the animal dies of asphyxia.

Death is brought on by the cessation of the respiration, and not by that of the action of the heart.

7. The effects of delphinine on the digestive organs are vomiting and diarrhœa.

8. The pupils are affected by means of the cilio-spinal centres; myosis is followed by mydriasis. The dilatation of the pupils may take place even after most minute doses of the alkaloid.

9. Delphinine is eliminated by increase of the secretions of the saliva, bile, urine, and of the intestinal secretions.

The treatment of poisoning by delphinine is guided by our knowledge of the mechanism

of the death from this alkaloid, which takes place by cessation of the respiration. Artificial respiration, therefore, must be at once resorted to in order to gain time for the elimination of the poison. There exists only a partial antagonism between delphinia and other alkaloids, with strychnia with relation to the sensibility, with atropia as regards the cardiac arhythm. But neither strychnia nor atropia will succeed in preventing death from delphinia if the artificial respiration has been delayed and neglected.

The therapeutical indications of delphinia are suggested by the physiological action of this alkaloid on the sensibility; it may therefore be employed in neuralgia, and perhaps in certain hyperæsthetic affections or in neuralgia of the fifth nerve. As to the mode of its administration, the internal use will be preferable to subcutaneous injections, on account of the insolubility of the alkaloid in pure water. The maximal dose of 1 milligramme ($\frac{1}{60}$ of a grain) may be repeated every two hours until the effects become manifest.

The external application cannot have much anodyne power, the absorption of the medicament being almost *nil;* besides, it is by its action upon the bulbous portion of the medulla that the specific effects are produced.

Reviews.

A Practical Treatise on Renal Diseases and Urinary Analysis. By William Henry Porter, M.D., etc. Containing one hundred illustrations. New York: William Wood & Co., 1887.

For ten years, the author tells us, he has had ample opportunity for studying the various lesions of the kidney, and the ideas advanced by him are based upon the results of over one thousand autopsies. He has endeavored to present the subject of renal disease not only from the pathological and clinical point of view, but also from the physiological stand-point. The work opens with a brief but clear *résumé* of the anatomy and physiology of the kidney. The diseases of these organs occupy the greater part of the volume; there is also a chapter on diabetes, and a concluding section on urinary analysis in its widest sense.

Diseases of the kidney are studied under the headings of "acute parenchymatous metamorphosis, or acute parenchymatous nephritis," "chronic parenchymatous metamorphosis," embracing the three forms of large white kidney; "acute diffuse nephritis," "chronic diffuse nephritis," embracing the three forms of the disease. Chapter V. treats of "complications of renal lesions and treatment of chronic diffuse nephritis."

Acute and chronic sclerosis, gouty kidneys, hyaline, albuminoid, or waxy kidneys, with a summary, form the topics of Chapter VI.; the remainder of the first section embracing chapters on Renal Hemorrhage, Hæmatoglobinuria and Anæmia, Acute and Chronic Congestion, Pyelonephritis and Pyelitis, Pyonephrosis, Hydronephrosis, Renal Calculi, Chronic Atrophy and Hypertrophy, Cysto-Scrofulous Kidneys, Infarction, Fat Emboli sms, Pyæmic Emboli, Sarcoma, Adenoma, and Lipoma, Parasites, and Glycosuria.

This summary will give an idea of the general arrangement of the book; as for its actual character and value, it must be said that the author has done the mere literary part of the work well; his descriptive writing is clear and forcible.

The diagrams of the different renal diseases are carefully and minutely drawn. In discussing treatment the author is far more satisfactory than the generality of writers upon renal diseases. He does not generalize as many do, and after describing many varieties of diseases mass the treatment of all in one comprehensive paragraph. In acute diffuse nephritis, jaborandi seems to be his main reliance, either in the drug or its alkaloid; from observing a large number of cases he deduces "that it is not depressing to any notable degree, and is always followed by most desirable results." Its action he concedes should be very carefully watched. Digitalis is the remedy of the acute state. The potassium salts are contraindicated. Opiates cannot be used in the uræmic attacks of children, and iron in tincture of the chloride only when it tends to assume the chronic form.

In the parenchymatous metamorphosis of pregnancy, which he calls the second form of large white kidney, the author relies mainly on a modified Basham's mixture, giving ether or chloroform to prevent the return of convulsions, and he considers pilocarpine as useful to the mother, since it "undoubtedly causes the rapid expulsion of the child," "apt to be still-born," but it will often save the mother's life.

The chapter on "Complications of Renal Lesions" presents one of those extremely-useful articles which give us a view of the

relations of diseases with each other. Were the author to base his claims for respectful hearing upon this chapter alone he would not be unwise. Especially valuable are his hints for the treatment of intercurrent disease, the bronchitis, the cardiac lesions, the asthma, dropsy, constipation and diarrhœa, eczema, erysipelas, and the gastric affections. In œdema of the larynx he suggests a trial of O'Dwyer's tubes. In peritonitis, often a disease of renal origin, opium, he says, "while it may decidedly improve the peritonitis increases the strain on the renal organs." "Will the kidney's epithelium stand this extra strain?"

This question has a direct bearing upon abdominal surgery. Cases have occurred within the author's observation where, with rapid repair going on in the abdominal incision and intra-peritoneal wound, the patient had yet died with "symptoms commonly classed as septic." Close investigation revealed "a rapidly developing acute parenchymatous metamorphosis of the kidneys." The bladder in all these cases contained urine showing albumen and abundant characteristic casts. If, then, after abdominal operations, when on the second or third day certain symptoms enumerated by the author make their appearance, "copious draughts of simple or medicated waters" be given, the quantity of urine will be increased. Albumen and casts disappear, and the threatened septicæmia vanishes. The author gives us his theory of the causation of this condition of the kidneys after operation. Anæsthesia, the increased necessity for elimination, the often unavoidable use of opium, these are his main factors. In renal pneumonia, "free and early cardiac stimulation by ammonia and alcohol." Ergot is useful in steadying "the contraction of the arterioles;" digitalis should be avoided as causing heart-failure. Uræmia is very carefully studied in this chapter. A pill of caffeine, strychnine, and digitalis is recommended; "but for a quick action," Basham's mixture with spiritus eth. nit. Where there is a "nervous element," which the author takes some pains to explain, he gives us a tonic, a mixture of nux vomica, damiana, and gentian, upon which he evidently places great value, and which he recommends in other conditions and frequently refers to.

The chapter on "Parasites" is well illustrated. In "Glycosuria" the author gives the result of numerous autopsies, and has written a chapter of great interest and value. Some of his views are novel. He divides the disease clinically into the temporary, the mild, and the severe. The relation between the failure of digestion in advanced glycosurics and the increase of kidney-lesion, shown by casts and albumen, is dwelt upon at some length. In these cases, if the condition of the kidney can be improved, the digestive symptoms will disappear and the appetite return, showing, he thinks, that the failure in digestion was not the result of overstrain of the digestive organs from the limited diet, but from difficulty of elimination. Very excellent diet tables are given, which, however, present no new points of interest. The diet-list of Professor Andrew H. Smith is also given. The second section of the work is devoted to "Urinary Analysis," and goes over the ground thoroughly. The student and practitioner can turn to him as a guide and manual on the subject without fear or disappointment. The illustrations of microscropical examinations are good, and the text is suggestive everywhere with diagnostic points, which render the second section more valuable. In short, the book is one which cannot be read carefully without giving us some more complete idea of renal disease, and from its perusal one surely must rise somewhat better fitted to engage in the struggle with a group of diseases more misunderstood and more insidious perhaps than any other with which the medical man is brought in contact.

E. W. W.

DIE MORPHIUMSUCHT UND THRE BEHANDLUNG. Von Dr. Albrecht Erlenmeyer. Dritte vermehrte und verbesserte Auflage. Mit 22 in den Text gedruckten Holzschnitten.

Berlin C., Leipzig, Neuted, Heuser's Verlag (Louis Heuser), 1887.

Most German medical books portray in the poorness of their paper and general make-up the frugality of the German nation. The present volume is evidently an *édition de luxe*. With its broad margins and its large clear type, it appears almost like a new departure in medical literature. Evidently Dr. Erlenmeyer is a successful book-writer or practitioner, and likes to see his offspring arrayed like unto Solomon in all his glory. In the nearly five hundred pages of the work the whole subject of the morphia-habit is treated in a most detailed manner. Indeed, a work of such magnitude upon so small a theme could not, we think, in this country have met with financial success, let its merit be what it would. The fact that the first edition of the treatise was exhausted inside of six weeks and the

second in four years, shows that the Germanic mind is much exercised upon the subject of the morphia-habit.

The book is divided into nine chapters. Of these the most interesting are the third and fifth, in which are respectively discussed the symptoms and treatment of the morphia-habit. Specially worthy of note in the second chapter we find the report of a case in which fatal tubercular poisoning is believed by Dr. Erlenmeyer to have been produced by infection with the hypodermic needle. A physician, aged 38, who had been accustomed to use the same syringe for himself and a tuberculous patient, died suddenly, and at the autopsy a tuberculosis, strictly localized to the peritoneum, was found. A fact, of which we confess we had not before had knowledge, is that children born of morphia-eating mothers are practically morphia-eaters, and during the first days of their life, unless morphia is given to them, are very apt to suffer collapse. This condition may end in death, and seems to be parallel to sudden giving out of the system which sometimes follows the sudden withdrawal of the alkaloid in the adults. Several cases are related on page 45 in which newborn children, in such collapse, were apparently saved by hypodermic injections of morphia. Dr. Erlenmeyer asserts that whilst sugar is frequently found in the urine after acute poisoning, it is never, or very rarely, present in chronic morphia-poisoning.

In the fifth chapter three methods of treating the morphia-habit are discussed in detail. The first of these methods is that whose central idea is the sudden and complete withdrawal of the morphia. Under these circumstances violent delirium is very prone to occur, and is not rarely accompanied by severe and even fatal collapse. On account of its danger this method of treatment is condemned by Dr. Erlenmeyer. Another plan of treatment, which is also condemned, is the very gradual withdrawal of the morphia. The method which is favored is a rapid but not sudden denial of the alkaloid to the patient. When the habitual dose has been not over seven grains of morphia a day, the alkaloid is to be withdrawn entirely in the course of six days. Wheu the quantity has been greater than this, ten or twelve days may be required. Under such rapidity of withdrawal collapse is said never to occur. Burkart's experience, that the hypodermic users of morphia yield much less rapidly to treatment than do those who take the alkaloid by the mouth, is confirmed by Erlenmeyer. The experience of the writer of this review distinctly coincides with that of Dr. Erlenmeyer in believing that the best treatment of the morphia-habit is to be found in the rapid but not immediate withdrawal of the poison. The use of cocaine for relief during the first period of abstinence is condemned by Dr. Erlenmeyer.

In conclusion, we can commend this book to any one who is desirous of a sumptuous volume, containing all that is known in regard to the opium-habit. The bibliography at the end of the book contains a descriptive list of two hundred and sixty papers and books upon the subject.

DIFFERENTIAL DIAGNOSIS. A MANUAL OF THE COMPARATIVE SEMEIOLOGY OF THE MORE IMPORTANT DISEASES. By F. Dehavilland Hall, M.D., Assistant Physician to the Westminster Hospital, London. Third American Edition. Thoroughly revised and greatly enlarged. Edited by Frank Woodbury, M.D. Philadelphia: D. G. Brinton, 115 South Seventh Street, 1887.

The present volume is a book of two hundred and fifty pages, in which it is attempted to give the diagnosis of all of the diseases, not surgical, to which flesh is heir. In spite of the use of tables, and double columns of fine or coarse print, the effort is scarcely a successful one. No doubt the student or the ill-informed practitioner may glean from the pages a good deal that is to him of great importance; but there can be no comparison between the book and that of Professor Da Costa upon the same subject. Upon looking over the diseases of the nervous system with a good deal of care, we find much that, according to our thinking, is not exactly correct. Thus, the statement on page 87, "The high temperature of cases of sunstroke serves to distinguish such from the coma of apoplexy," is, in its unqualified condition, simply incorrect. Very high temperature may be present in an apoplexy. Then, again, the diagnosis between cerebral hemorrhage, cerebral thrombosis, cerebral embolism, although compiled from various authorities, is not accurate. Pain in the head is in no sense a characteristic of cerebral hemorrhage as opposed to cerebral thrombosis. There frequently is loss of consciousness in cerebral thrombosis, and almost as frequently no loss of consciousness in cases of slight hemorrhages. The recovery after cerebral thrombosis is certainly no more slow than after cerebral hemorrhages, as would seem to be indicated by the text before us. Then, again, spastic cerebral hemiplegia, spoken of on page 100, is not an equivalent of poliencephalitis;

although, as this subject is a very obscure one, an error here is excusable. The portion of the book which treats of the respiratory apparatus seems to us to be more satisfactory than that which discusses diseases of the nervous system. The fact that the work has reached its third edition indicates that it has met a want, but we sincerely hope that it has not taken the place of more elaborate treatises upon the same subject.

A REFERENCE HAND-BOOK OF THE MEDICAL SCIENCES. Edited by Albert H. Buck, M.D., New York City. Volume V.
New York: William Wood & Co., 1887.

With commendable regularity the successive volumes of this great work follow one another. The one before us commences with Miliaria and ends with a very elaborate article, from the pen of Dr. E. H. Bradford, upon Pott's disease. On looking over the volume we find that it presents the same characteristics as those which have been previously published. To us it is especially valuable on account of the curious out-of-the-way information which it contains, often upon subjects of great practical importance. The first article that attracted our attention, probably on account of its numerous illustrations, is one upon poisonous insects. Reading it over, we felt assured that it must have been written by the well-known American entomologist, Mr. Charles V. Riley, a conclusion which was confirmed by reference to the end of the article. In this paper are described, with anatomical and scientific exactness, all insects, from the mite to the tarantula, or the great centipede, that are capable of injury to men. Some of these creatures we trust our readers may never make acquaintance with. Especially will the big bedbug of Arizona strike terror into the heart of the Eastern housewife, if ever it finds its way into civilization: nimble-footed, enormous in size, armed with a beak nearly the fifth of an inch in length, this pest causes in its victim a convex wheal an inch or more across, followed by great pain and itching, and after some days a discharge of pus.

A very elaborate article, learned and interesting, is that by Dr. J. N. Mackenzie, of Baltimore, upon neuroses of the nose. We have not time to follow the discussion, in which he reaffirms the correctness of his well-known belief that in that portion of the nasal mucous membrane which covers the turbinated corpora cavernosa there is a sensitive spot whose irritation produces a reflex cough, whilst the remaining mucous membrane of the nose is almost insensitive. The discussion which this theory or alleged fact has given rise to is stated by Dr. Mackenzie with commendable fairness.

In previous notices we have called attention to the value of the descriptions of Health-Resorts and Springs scattered through the work. Volume V. conforms in this as in other respects with those that have preceded it. As an instance of an excellent climatic article, we notice one by Dr. H. Richards upon New Mexico, immediately followed, as it so chances, by articles on New Orleans, Newport, New South Wales, and New York City, all from the same pen.

LESSONS IN GYNÆCOLOGY. By Wm. Goodell, A.M., M.D., Professor of Clinical Gynæcology in the University of Pennsylvania, etc. Third edition, thoroughly revised and greatly enlarged, with one hundred and twelve illustrations.
Philadelphia: D. G. Brinton, 1887.

The author by no means considers this work as a complete treatise. Its teaching is very largely clinical, and the aim of the work practical in the extreme. It is a mirror of the author's system of class instruction, and illustrates his somewhat peculiar gifts as a teacher and lecturer. The present third edition is much enlarged, containing six entirely new lectures and many new illustrations. Perhaps the distinguished author has done no more useful work than in writing the chapter on "Nerve Counterfeits of Uterine Diseases," and in the decided stand that he takes everywhere against unnecessary uterine "treatment." Throughout the volume the author's descriptions of cases lend an additional interest to the didactic matter. The illustrations are clear, plain, and easy to comprehend, and to the operator will prove invaluable.

A MANUAL OF THE PHYSICAL DIAGNOSIS OF THORACIC DISEASES. By E. Darwin Hudson, Jr., A.M., M.D., etc.
New York: William Wood & Co., 1887.

There are many excellent manuals within reach of the student and practitioner, and yet this volume strikes us as somewhat unique and as deserving attention. It recognizes, as does no manual of diagnosis within our remembrance, some of the real difficulties in auscultatory diagnosis, as, for example, the distinction between pleural and pulmonary crepitant and subcrepitant râles. Not that other writers are ignorant of the difficulty, but rather that they treat it as a small matter, and one by no means likely to prove trouble-

some to diagnosticians of their calibre. The author, however, in this and many other instances, admits that to err is human, and his rules for avoiding error in such cases seem to us better, clearer, and more intelligible than usual.

The illustrations in the book are also excellent, and impress the eye, so that a mental picture of dulness areas is retained long after the page is turned. There are no useless words, but a study of clearness in expression. The author believes in the "Ellis line" of dulness in pleural effusions in a majority of cases, but does not go into the theory connected with it, so ably illustrated in the experiments of Garland,—a theory which, it seems to us, if once accepted, necessitates a restudy of the whole question of pleural effusions. The chapter on "Synopses of Heart-Disease" will be found extremely valuable to the student.

E. W. W.

VON ZIEMSSEN'S HANDBOOK OF GENERAL THERAPEUTICS. Volume VI., ELECTRO-THERAPEUTICS. By Wilhelm Erb, M.D. Volume VII., THERAPEUTICS OF CIRCULATORY DERANGEMENTS. By Professor M. J. Oertel, M.D., of Munich.

These two books complete this so-called "Handbook of Therapeutics," which is really a work of a succession of monographs covering almost all methods of the treatment of disease not connected with drugs. These two volumes are fully up to the standard of those which have gone before them, and especially is the work of Professor Oertel of importance. In an editorial in the October number of the GAZETTE, reference was made to the labors of Professor Oertel.

THE MEDICAL ANNUAL AND PRACTITIONER'S INDEX. A WORK OF REFERENCE FOR MEDICAL PRACTITIONERS. Edited by Percy Wilde, M.D., 1887. Bristol: John Wright & Co. London: Hamilton, Adams & Co., etc.

This is a convenient and attractive epitome of practice, both surgical and medical, wherein are introduced, together with the standard and orthodox modes of treatment, all the discoveries and improvements of the past year. Owing to its alphabetical arrangement and its plain head-lines, it is easy to find anything in a moment. A somewhat extended perusal of the book convinces us that it is all that its editor claims, and will prove a great assistance by giving at a glance a thorough digest of the year's advance on any desired subject. Authorities are given in all cases, long citations where necessary, and the small size of the volume will allow of its being carried in the pocket. Such a book, kept at hand and read at spare moments, would do much to bring the hard-worked rural practitioner fully up to the standard of his more fortunate brother, who has, perhaps, more time, more access to journalistic literature, and inhabits some medical centre where it is as hard to fall behind as it is in the country to keep up with the rapidly increasing knowledge of the day.

E. W. W.

Correspondence.

BERLIN.

(From our Special Correspondent.)

On the 29th of September a stroke of paralysis ended the life of a man who was universally acknowledged by the medical world of Germany to be the leading surgeon of the times.

Bernhard von Langenbeck, the indefatigable and persevering investigator, the inspiring teacher of the academic youth and of the physicians of our nation, the most magnificent operator of the day, the great-hearted humanitarian, the high-minded and noble gentleman, the most genial colleague, and the winner of highest honors, is no longer among the living.

Foreign countries mourn with us the loss of our great surgeon, and surely many of the readers of this journal will recall with gratitude the hours when they were privileged to listen to the instructions of our departed teacher; America also, who sends yearly a large number of physicians to the German clinics to complete their education.

Bernhard v. Langenbeck was born on the 9th of November, 1810, at Horneburg, in the province of Hanover. He was the nephew of the famous surgeon and anatomist, Konrad Johann Martin Langenbeck, who, until 1851, had worked for nearly half a century at the University of Göttingen. Langenbeck also studied in Göttingen, and took his degree of Doctor of Medicine in 1835. He then made a scientific visit to France and England. On his return he domiciled himself in Göttingen as *privat-docent*. He was there made *professor extraordinarius*. In 1842 he was called to Kiel as *professor ordinarius* of surgery. He served in the war of Schleswig-Holstein against Denmark as general staff surgeon of the army, and had charge of the surgical service of the Lazarets. In the year 1847, in consequence of the death of Dieffenbach, he was called to

Berlin, and given charge of the royal surgical clinic.

This clinic at the time contained twenty-eight beds, and under his régime grew to what it is to-day,—one of the first and largest surgical clinics in the world. Again, during the campaign against Denmark in 1864, Langenbeck was called to the position of surgeon-general, and in the same year was raised to the nobility. He also took part in the Austrian campaign (1866), and in the Franco-Prussian war (1870–71) as consulting surgeon. In 1882 he gave up his professor's chair in Berlin and went to Wiesbaden, where he remained until his death. During the last years of his life he rarely even attended calls for consultation. It was only a year ago that he suffered from cataract, which, however, was successfully operated upon.

Langenbeck's scientific renown is especially in the field of operative surgery, and it was he who first brought the conservative principle of surgery into practice. His resections and methods of osteotomy, his plastic operations and tenotomies, are still deemed worthy of imitation.

Besides this, his activity during the different campaigns in which he took part enabled him to gather his experiences in a series of works, which secure for him the deserved title of the first army surgeon of the world. No books refer to the work Langenbeck did as an operator, and the history of his skill can only be handed down to posterity by those who listened with interest and wonder to his teachings, and who have stood by him at the operating-table. There is hardly any class of surgery in which he did not work in a new and often highly original manner. The students who worked under his tuition are scattered far and wide over the globe, and their names echo loudly the renown of their great master, at whose feet they once sat.

Esmarch, W. Busch, Billroth, Hueter, Schoeborn, Trendelenburg, Gurlt, Luecke, these are a few of those who once were his assistants. The Surgical Congress of Germany and the Medical Society of Berlin, of both of which he once was president, have determined to hold a grand memorial celebration in honor of the great departed surgeon in the spring of next year.

During this autumn over in America the greatest interest was aroused in reference to the International Medical Congress, which, according to the accounts of several journals here, was half a failure. At the same time, among the many conventions held, the Convention of German Physicians and Naturalists took the first place. This learned society (which meets every September) was founded in the year 1822, principally through the efforts of Okens, in Leipzig. Since then it has met regularly for sixty years, except during war times or when cholera was raging in the country.

The organization of the society is a thoroughly free one. It has no standing committee. Every branch society chooses a meeting-place for the next year, and appoints two business managers, upon whom is devolved the entire business of the convention. Anybody can become a member who has proved himself to be a writer and investigator in some branch of medicine or natural sciences.

These meetings of physicians and natural scientists become yearly the centre of attraction to the scientific world of Germany. They bring together at their meetings from one to two thousand members. Of course the number depends somewhat on the place of meeting. When the convention was held in Berlin over four thousand members were present. Austria is always represented very largely, also Switzerland, the Netherlands, and other neighboring countries.

As in the International Medical Congress, so also in our convention, articles of general interest only are read in the general meetings, while articles on any special scientific subject are placed in their respective departments. The number of these articles read during this last year's meeting, which occurred at that well-known watering-place Wiesbaden, was twenty-eight. The managers of the society this year were the chemist R. Fresenius and Dr. Arnold Pagenstecher. Among the lecturers at the general meetings were Virchow, the chemist Wislicenus from Leipzig, Pryer, professor of physiology at Jena, Professors Meynert and Benedict from Vienna, and the well-known bacteriologist Hueppe. The convention lasted for one week, and was combined with many festivities, which were pleasant interruptions to the work. Besides this there was a very large and complete exhibit of scientific instruments and apparatus, also plans, charts, and models, and pharmaceutical preparations.

These were contributed by some five hundred exhibitors, and formed a most interesting part of the programme, and gave a very good idea of what technique has done during the last few years for the advance of scientific investigation, for the teachings of natural sciences, and for hygienic medicine and surgery.

We can only give a sketch of the pharmacological part of the exhibition. Among the exhibitors were nearly all the leading German manufacturers,—E. Merk, of Darmstadt; Eugen Dieterich, of Helfenburg; Jaffe and Darmstäder, of Berlin; and many foreign firms, as well as the great firm of Burroughs, Wellcome & Co., of London.

Among the exhibition of prepared drugs we found quite a number of novelties. A heart-poison, strophanthus hispidus; several antisyphilitics, solanum paniculatum, jacaranda lancifolia and mimosifolia, tribulus lanuginosus, francicea uniflora; one antiepileticum, capparis soriacea; stomachics, erodia fraxinifolia and aletris farinosa; a remedy for diabetes, eugenia jambolena; a new remedy for asthma, atherosperma moschata; a remedy for intermittent fevers, chionanthus virginiana.

The new German colonies in West Africa sent nuces kolæ, which contains two per cent. of caffeine, and is, therefore, recommended in neuralgia; also nuces cali, which are said to be similar to sem. Calabar.

There were several drugs which have come into favor last year, among which we must mention the hydrastis canadensis, which seems to have permanently established itself in the practice of medicine.

Concerning the "pharmacopœia elegans," the German manufacturers are continuing to strive with increased energy to perfect their preparations, and to satisfy all demands, not only for outward form and appearance, but also for taste and assimilation. America is somewhat in advance of us in this line. Still, several of the preparations which we have introduced are coming more and more into favor; the "fluid extracts," for example.

The exhibition also showed the great advance recently made in dermatological preparations, this department being very complete and containing much new material. While formerly only officinal pharmaceutical preparations were compounded in the laboratories, now the manufacturing of *dermatotherapeutic* remedies has become a specialty in itself.

New remedies, such as ichthyol, and new salve bodies have been discovered. The place of the old-fashioned fat is taken by vaseline, lanolin, soap, and, lastly, by mollin,—a mixture of fat and glycerin. Then a new specialty is springing up in the soap industry,—viz., the preparation, principally by means of centrifugalization, of a perfectly neutral soap, in which various drugs and remedies may be incorporated; also the manufacturing of the American rubber plaster, which was so quickly introduced here, has become a German industry.

The science of therapeutics owes a great debt of gratitude to organic chemistry, which of late has been taking immense strides, for having supplied it with a number of new remedies, some of which are still in a state of probation and experiment. Foremost among these are the new derivates of *benzol*. Among these a veritable bonanza of antipyretics and antiseptics seems to have been found. While the base derivates containing nitrogen seem to be of service as antipyretics, those free from nitrogen and containing oxygen seem to have greater antiseptic properties. Some derivates, however, seem to be efficacious as both, as, for example, *salol*. Formerly it was thought that the more complicated derivates of benzol (such as the chinolin and pyridin group, from which also the neutral alkaloids are supposed to be formed) principally contained antipyretic properties. It now, however, is proved by acetanilide (*antifebrin*), which has been so recently taken up, that also the simple and perhaps the most base derivates of this highly interesting body also contain antipyretic properties. Another interesting derivate of benzol is the recently discovered acid called *sulphinid saccharin;* and now, as such quantities of this drug are in the market, it will soon be shown to what an extent this acid has the power of replacing sugar, in diabetes, for example. The *menthan* group has also contributed new material to therapeutics, especially hypnotica, and of which the latest (hydrate of amylen) is still undergoing further experiments.

Electro-therapeutics was also wonderfully well represented at this exhibition. The collection of surgical instruments was also very complete, and various different novelties in the different specialties—ophthalmology, laryngology, rhinology, gynæcology, dentistry, etc.—were shown.

Besides this convention of physicians and naturalists there were a series of special conventions taking place during September in Germany. In Frankfort-on-the-Main there was a convention of specialists of insanity and brain-diseases, and in Heidelberg there was a meeting of the Ophthalmological Society. This last-named society, by the way, celebrates its twenty-fifth anniversary next year, and purposes then to hold an international ophthalmological convention in Heidelberg. After the flood-tide of interest caused by the convention, which, during the

autumn months, is an all-absorbing topic to the medical and scientific world, somewhat subsides, quiet, but equally as intensive and active work begins again among the local societies. In my next letter I purpose to report to you on the first session of the Medical Society of Berlin (Berliner Medicinischer Verein), which is already hard at work.

Finally, let me make mention of an important investigation which has recently been taking place in the hygienic institute of Dr. Koch, which will be of special interest to the readers of the THERAPEUTIC GAZETTE, as the worker is one of their countrymen, Dr. Ernest Laplace, of New Orleans.

Laplace carefully examined the "sublimate bandage," which is being so extensively used in the practice of surgery, to ascertain, firstly, whether it was really germless,—that is, aseptic; and, secondly, whether it was also antiseptic. The result of his investigating experiments showed that the most of the bandages examined proved to be in conformity with the first condition. However, he found that when the sublimate came into contact with substances containing albumen, in consequence of the residue of mercurial albuminate which was formed, the antiseptic properties (which it otherwise has when not in contact with albumen) were hindered and lessened.

To prevent the formation of such a residue, Laplace added acids to the solution of sublimate, and found that a certain amount of tartaric acid had the desired effect. To a five per cent. solution of the sublimate two per cent. of tartaric acid should be added, and the neutral gauze bandage steeped in this solution, then wrung out and dried. When this bandage was brought in contact with serum or blood containing pus-bacteriæ, these were always killed. This bandage was practically tested by Dr. v. Bergmann in several surgical clinics with great success. Even when used on discharging and sloughing wounds it always remained sterile.

The employment of tartaric acid with sublimate in solution in the preparation of bandages is of great importance in the practice of surgery, and should be most highly recommended, as the full actions of the sublimate are thereby retained, by means of the acid, even in the presence of fluids or discharges containing albumen.

The tartaric sublimate bandage does not interfere in the least with the simultaneous employment of other dressings or remedies, such as iodoform, caustic, etc. This has been proved by careful experiment. The wounds are not irritated by it. For the treatment of fresh wounds Laplace recommends washing and irrigation with the following solution:

℞ Sublimate, 1;
Acid. tartaric., 5;
Aqua dest., 1000.

The bandage should be prepared with—

℞ Sublimate, 5;
Acid. tartaric., 20;
Aqua dest., 1000.

The bandage or cotton-wool must be neutral and entirely free from all fat, and should be soaked in this solution for about two hours, then carefully wrung or pressed out, and then dried. The sublimate dissolves better in the acid solution than in the pure water. The solution will readily cling to the fibre of the bandage without injuring it in any way, and renders it perfectly germless. Four quarts of the solution will be enough to impregnate one hundred metres (about one hundred and twenty yards) of bandage.

PARIS.

(From our Special Correspondent.)

An important investigation on *colchicum*, *colchicine*, *colchiceine*, and *hermodactyls* has just been completed by Dr. J. V. Laborde, of the Academy of Medicine, and M. A. Houdé, a pharmacist of the first class. They have succeeded in devising a good process for extracting *pure crystallized colchicine*, and practical methods for its *quantitative estimation* in the drug and its preparations, as well as for its *detection* in animal tissues for *medico-legal purposes*. Their mode of extraction is a novel one, as they avoid the use of mineral acids and acetic acid, alkalies and alkaline earths, all of which change colchicine into colchiceine, a comparatively inert substance, or, at least, much inferior in medicinal virtues. They operate as follows: Powdered colchicum-seed is exhausted by percolation with about three times its weight of alcohol of ninety-six degrees. The percolate is filtered, and evaporated in vacuo at a low heat till the last traces of alcohol have been driven off. The residue, consisting of two layers,—one a watery liquid and the other an oily substance, lighter and nearly twenty times as bulky,—is shaken in a separator with a five per cent. solution of tartaric acid, the operation being repeated until Mayer's test no longer affords a white precipitate with the

washings. In this way the oily substance, which contains most of the colchicine, yields it to the acid solution, whose effect is possibly to decompose the oleate of colchicine there probably existing. The acid liquors are next shaken with ether, perfectly free from alcohol, to remove coloring-matters, traces of oil, etc. (colchicine being insoluble in ether), and then agitated with successive portions of chloroform till exhausted. The chloroform of the solution is now distilled off, and the brown residue redissolved in the smallest possible quantity of chloroform, and petroleum benzine of sp. gr. 0.620 is cautiously added in very small portions, until all the coloring-matters have been separated, and a limpid, colorless solution results. Finally, the liquor is left to evaporate spontaneously, and in a few hours colchicine, crystallized in long white needles, is obtained. One feature of this process is that no alkali is used; another is the addition of benzine, which, by the way, is a delicate point, as benzine, after at first separating the impurities, will, if added in too large a proportion, end in separating also the colchicine from the chloroform solution. Colchicum-seeds afford thus 3.35 per thousand of crystallized colchicine, and the root 0.45. All the parts of the plant contain more or less of the active principle, the fresh flowers ranking between the seed and the corn. Hermodactyls were also found to contain colchicine, a fact confirming Professor Planchon's opinion that the drug sold under this name in commerce is derived from a colchicum, probably the *C. variegatum*.

The behavior of crystallized colchicine with reagents, etc., was found to agree in general with the description already given by investigators operating with the amorphous principle. There is, however, a remarkable exception, namely, the ferric chloride test recommended by Draggendorf as affording a permanent green coloration. Messrs. Laborde and Houdé disagree from this opinion, and say that the green color does not appear with pure crystallized colchicine, but only when it is contaminated with colchiceine. Indeed, they consider the test a very sensitive one for detecting minute quantities of colchiceine, even when mixed with large proportions of colchicine. Another contrast between the two substances is, that while colchicine is intensely and persistently bitter, colchiceine hardly presents any bitterness, unless when contaminated with colchicine. To pass briefly over the chemical history of the substance, suffice it to say that M. Houdé considers colchicine a nitrogenated neutral principle with the formula $C_{46}H_{57}NO_{14}$ (o = 16), from which colchiceine differs by the loss of an equivalent of methylic alcohol. Experiments having proved that the change of colchicine into colchiceine is accompanied with the formation in the presence of acids of a methylic ether, there is good ground for regarding *colchicine as a methyl-colchiceine*, just as codeine is nothing else than a methyl-morphine.

For *toxicological researches* the following process is recommended: The organs, well divided, are exhausted by maceration with alcohol of ninety degrees, holding some tartaric acid in solution; the spirit is distilled off in vacuo; the residue, after filtering out the fatty substances, is shaken repeatedly with chemically pure chloroform; and finally spontaneous evaporation yields pure colchicine in the amorphous state. Although simple, the method is guaranteed to be reliable and sensitive. Most of the poison is found in the stomach, the bowels, the liver, and the pancreas; the saliva and kidneys contain least, while the blood never shows a trace.

The Pharmacy of Colchicum.—The foregoing renders criticism easy respecting pharmaceutical preparations of colchicum. Messrs. Laborde and Houdé condemn, for apparently good and sufficient reasons, all preparations made with acetic acid; they would also discard all preparations from the tubers and all wines of colchicum; the first because too unreliable, and the second because they have not succeeded yet in estimating the colchicine therein contained by their general process of extraction. Only the three following galenicals are considered worthy of retention, namely, a tincture of the fresh flowers, made with equal weights of the drug and alcohol of ninety degrees; a tincture of the seeds, from the finely-powdered drug and five times its weight of eighty per cent. alcohol; and finally an extract of the same, made by exhausting the powdered seeds with eighty per cent. alcohol, and evaporating the liquor at a low heat to the consistence of a soft extract, care being taken to keep in all the resinous and fatty substances, as they hold most of the colchicine. The doses for twenty-four hours are as follows: Of the tincture of fresh flowers, 10 grammes (2½ drachms), corresponding to 5 milligrammes of colchicine; tincture of the seeds, the same, equivalent to 7 milligrammes; extract, five pills of 3 centigrammes (½ grain), representing 5 milligrammes of the active principle. But, in preference to all preparations, granules containing 1 milligramme ($\frac{1}{10}$

of a grain) of crystallized colchicine are recommended, also a wine, and a solution for hypodermic uses.

To conclude with the therapeutics proper of colchicine, Dr. Laborde considers it a sure cure and preventive of gouty affections in all their forms. When the fit is well on, he advises, for the first day, four granules of 1 milligramme, given at fifteen minutes' interval; for the second, three granules; for the third, two; and the fourth only one. Then stop the medication for six or eight days, and begin it again in the same manner, if necessary. As a preventive, when a fit is felt to be imminent, he begins with three granules, and decreases the quantity as above. He says he has never failed, but it must be borne in mind that the climate of France is eminently favorable to the cure of gouty affections.

Some scepticism begins to be felt in regard to *kephir*,—the fermented milk,—so much extolled at first. Any other ferment than the true Caucasian was declared to produce a vulgar beverage, not to be compared with genuine kephir, as it did not contain the characteristic bacillus. But now Dr. Levy, of Haguenau, has demonstrated that the same result can be obtained by following the usual method for preparing kumyss, an opinion shared by other scientists. M. E. Reeb proposes the subjoined ready process: To milk, freshly curdled and thoroughly beaten, add two per cent. of simple syrup, and place the whole in a strong bottle securely corked, which is kept for three or four days at a moderate temperature. The beverage is now fit for use. It is sparkling, and has a peculiar pleasant flavor of its own. To hasten fermentation, the sugar may be previously interverted by ebullition with a small quantity of citric acid. Prepared in this manner, kephir contains about two per cent., by volume, of alcohol.

A curious incident, which took place at a recent meeting of the Belgian Academy of Medicine, shows the *utter disuse of bleeding* by modern practitioners. Dr. Willems related before the Academy that, a short time since, having been called in consultation with a younger brother physician, he suggested to bleed the patient, when his *confrère* declared he was quite unable to perform the operation, as he never had seen it practised in hospitals. Dr. Willems's statement astonished another academician, who expressed some incredulity as to such a state of affairs. "Well," said Dr. Willems, "I have no reason for concealing the name of the physician in question. It is Dr. Van Bellighen, a graduate of the Ghent University."

Tanacetic rabies is a new name proposed by Dr. Peyraud, a consulting physician at the Vichy springs. Having observed the effects of oil of tansy (*tanacetum vulgare*) on rabbits and other animals, and noticed the similarity of the symptoms with those of true rabies, he considers the foregoing appellation an appropriate one to designate the singular disease artificially produced. When two drops of oil of tansy are injected into the veins of a medium-sized rabbit, the animal, after twenty seconds, is taken with convulsions, and presents a series of symptoms, the most characteristic of which are violently biting any object offered, and exacerbation of the fit when a mirror is turned towards its face. There is also an unnatural appetite, and the mouth, œsophagus, and stomach are found full of bits of straw. Two birds, having been exposed to the vapors of oil of tansy, had, one a fit of biting rabies, and the other a fit of paralytic rabies. Other animals were experimented with, and with similar results. But, not to enter into lengthy particulars about anatomical examinations, etc., suffice it to say that the symptoms, taken altogether, are not of the epileptic but of the tetanic type, most especially the rabic variety. The chief difference is, that the disease cannot be inoculated. From oil of wormwood and Japan camphor oil of tansy differs by its stopping the glycogenic function of the liver. Another contrast is with bromide of potassium, which prevents the convulsions caused by wormwood and camphor, but is ineffectual with tansy. Dr. Peyraud's observations were presented to both the Academy of Sciences and the Academy of Medicine. At the first they passed without remark. But at the Academy of Medicine (October 18), Dr. Colin, a professor at the Alfort Veterinary School and a member of the Academy, objected to the application of the name rabies to the series of accidents brought on by tansy, adding that many therapeutic agents can produce symptoms similar to those of the rabic virus, and yet no one so far has thought of calling them rabic symptoms. "I see no reason," he said, "to change this way of doing. I gave dogs Hoang-nan, and observed therefrom a paralysis comparable to that of paralytic rabies, yet I was careful not to say the case was one of Hoang-nan rabies." Whatever may be thought of Dr. Peyraud's proposed name, his discovery must be admitted to have some importance at present when such bitter discus-

sion is raging, because it shows there are substances producing in animals symptoms that much resemble hydrophobic rabies.

PARIS, October 21, 1887.

THE DANGERS OF ANTIFEBRIN.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—In answer to Dr. Winnett's question in your last issue, permit me to say that I have several times witnessed cyanosis produced in women patients by three or four ¼-gramme doses of antifebrin. Have not seen it act so on men. Probably the nervous and circulatory systems of the latter can better resist the depressing effects of this drug.

F. M. BAUER.

220 EAST EIGHTY-SIXTH STREET, NEW YORK, October 6, 1887.

Notes and Queries.

PEROXIDE OF HYDROGEN.

We have received the following from an occasional correspondent:

"This is comparatively a new remedy, but a most active one. The H_2O_2 is the most positive antiputrefactive agent known; it should head the list of all others in arresting septic processes, both constitutional and local. According to good authority by comparative tests made, it is sixty times more potent as an antiseptic than carbolic acid, twenty times that of salicylic acid, and forty times more than sol. bichlo. mercury. These statements may seem to be exaggerations, but my experience with the remedy, after testing it in a variety of diseases of a septic character, only confirms the statements made by others. In diphtheria its dissolving (oxidizing) effect on the exudations is wonderful. Applied locally to the membrane in the throat this is removed in a few hours, and all the fetor destroyed and the mouth and throat rendered *aseptic*. Administered by inhalation and taken into the stomach, it destroys sepsis, vitalizes the blood by giving off oxygen to it, reduces high temperature, keeps intact the strength of the nervous system,—a want which frequently causes death by heart-failure. In this class of diseases the H_2O_2 can be administered with other indicated remedies.

"'If a decomposed egg be mixed with a small quantity of a fifteen-volume solution of H_2O_2, an active effervescence will take place, and the odor of the sulphuretted hydrogen be at once dispelled; when brought in contact with pus or putrid meat the same active effervescence will be observed, and the odor will be instantly destroyed.' My experience with it shows that it promptly disinfects all forms of putrid excreta and destroys at the same time all septic germs. The foulest and most putrid cavities it renders *aseptic* and entirely void of unpleasant odor. It is adapted to the syphilitic as well as the simple ulcer. When applied to a foul sloughing ulcer, a sluggish wound, or to an oozing carbuncle or open felon, not only is the pus destroyed but the sore is thoroughly cleansed and rendered aseptic. 'It is the most powerful antiputrid application known. Observed under a microscope, the rapidity and thoroughness with which H_2O_2 acts upon pus-corpuscles and bacilli is clearly seen. The corpuscles at once lose their spherical form, shrink, assume a concentric shape, and become heaped up as a mass of detritus, and in a few seconds the bacilli are transformed into a dead mass.' Its range of applicability is a wide one. I have used it in dressing wounds with better results than any other remedy. In fact, I have often been surprised to see some lacerated wounds heal (almost) by first intention under a three- or four-volume solution of the peroxide of hydrogen. In typhoid, scarlet, and other fevers it is a *sine qua non*, which should be administered both internally and applied externally as a wash to cleanse the skin of all septic matter, which is an active factor in rendering the fever continuous and malignant in type, etc.

"I have jotted down these thoughts that the members of the medical profession might become more intimately acquainted with this *most* active remedy. For I am led to believe that but few members of our profession know anything of the great curative properties of the peroxide of hydrogen. And for the want of this knowledge the remedy is left in the hands of charlatans to compete with scientific men in the profession whose remedies are less potent and efficient than this. Hence the advantage the quack has over the scientific physician."

EPHEDRINE.

Chlorhydrate of ephedrine is a new mydriatic alkaloid obtained from *Ephedra vulgaris* by M. KINNOSSUKE MINRA. It has to be employed in a solution ten times more concentrated than homatropine, but it is much less costly. It does not paralyze the accommodation for near vision.—*Lancet*, October 15, 1887.

SYNTHESIS OF PILOCARPINE.

MESSRS. HARDY AND CALMELS have announced (*Compt. Rend.*) the success of their efforts to prepare a second natural alkaloid by synthesis. As a starting-point the authors used "*b*-pyridino *a*-lactic acid," a derivative of pyridine which had previously been recognized among the decomposition products of pilocarpine and described by them. The first stage was the conversion of this compound into pilocarpidine. To effect this it was treated with hydrobromic acid and gold chloride, by which the lactic acid was reduced to propionic acid, and a bromoauric compound of *b*-pyridino *a*-propionic acid obtained. This was decomposed with hydrogen sulphide, and the syrupy acid set free was heated in a sealed tube with a solution of trimethylamine. The contents of the tube were afterwards brought to dryness, and the residue treated with aqueous solution of potassium carbonate, when oily drops separated that proved to consist of pilocarpidine. The conversion of pilocarpidine into pilocarpine was eventually attained by oxidizing an iodomethylate of pilocarpidine with silver permanganate, the products being formic acid and pilocarpine. From physiological experiments made on dogs with the synthetic compound its action appears to be identical with that of the natural alkaloid.—*Druggists Circular and Chemical Gazette*, October, 1887.

THE PHARMACOLOGY AND THERAPEUTICS OF METHYLAL.

We add the following to what we have already published as to the action of methylal.

M. PERSONALI, of the Pharmacological Laboratory of Turin, published a note on the pharmacology of methylal in the *Giornale della real Academica di Medicina di Torino*, 1886, page 295, in which he showed that methylal administered by subcutaneous injection, introduced into the stomach, or inhaled, has a sensible hypnotic action upon various animals —frogs, rabbits, pigeons, white mice, guinea-pigs, and dogs—in doses varying from 1 to 5 grammes per kilogramme of the weight of the animal. He described the sleep induced as profound; the reflexes were abolished, and there was a diminution in the frequency but an augmentation in the amplitude of the respiratory movements; the heart acted more rapidly, and there was a fall in blood-pressure; the temperature was lowered and the activity of the nutritive process was lessened. He then proceeded to study the antagonism of methylal to strychnine, and by its employment succeeded in suspending the tetanic convulsions and saving the life of an animal poisoned by strychnine. He found that methylal acted promptly, was rapidly eliminated, caused no appreciable disturbance, and fulfilled most of the conditions required in a hypnotic.

MM. Mairet and Combemale have continued M. Personali's investigations as to the physiological action of methylal, and have studied also its therapeutic application in mental disorders. The experiments performed on different animals by subcutaneous injection, by ingestion (into the stomach), and by inhalation gave the following results. The hypodermic injection of methylal caused extreme pain, and might even produce syncope; injected pure, it might lead to ulceration; when doses of from 25 centigrammes to 50 centigrammes per kilogramme of the weight of the body were used, slight salivation occurred; and from a quarter of an hour to an hour after the injection, the animal lay down and slept. The sleep was calm, but the animal remained sensible to external excitants, though the reactions were slow. When the dose reached 50 centigrammes per kilogramme of the weight of the body, the sleep was deeper, and required a much more powerful excitant to interrupt it. The animal could thus sleep several hours; on awakening it was heavy and lazy, but soon recovered. Between 50 and 70 centigrammes per kilogramme of body-weight, sleep was overpowering, the animal fell asleep eating or in the midst of its natural enemies, and an intense peripheric excitant was required to obtain even slow and feeble reactions. Other phenomena also appeared; the pupils were dilated and the muscular fatigue approached nearly to paresis, so that the animal jumped with difficulty and could not hold up; there was a high pulse at the outset and very marked salivation; these symptoms disappeared after several hours, and then sleep persisted along with the characters given above; at this period a slight lowering of the temperature occurred. After injecting more than 2 grammes per kilogramme of body-weight, two distinct phases of intoxication were produced; in the first depression with somnolence; paralysis, first of the hind-quarters, then becoming progressively general; hyper-excitability of the muscles and sometimes spontaneous convulsive spasms of the limbs; general and sensorial sensibility was retarded and diminished; the pupils were dilated; there was lowering

of the temperature; the frequency of the pulse was slightly augmented and respiration was difficult and intermittent; the hairs were erected. Two or three hours after the commencement of the experiment the second phase appeared; paresis disappeared or became much diminished, the other symptoms improved, and the animal lay in an ordinary sleep. On awakening, the secretion of urine, which had been suspended, was resumed, the animal remained depressed and without initiative, it had no appetite, lost flesh, and required several days to recover. With these large doses the gravity of the symptoms varied according to the resistance of the animal, and death might ensue; a guinea-pig succumbed after receiving an injection of 2.35 grains of methylal per kilogramme of its weight. The necropsy showed a general congestion of the brain and medulla, punctiform hemorrhages in the pulmonary parenchyma and in the myocardium, a marbled appearance of the liver, and congestion of the cortical substance of the kidney.

Introduced into the stomach methylal produced the same effects, and sleep was induced by the same doses but not so quickly; it did not take place until two or three hours after absorption, and lasted somewhat longer.

When the drug was administered by inhalation, the animals showed the same symptoms, but when the dose was large, irritation of the mucous membrane of the eyes, nose, and bronchial tubes ensued, causing a flow of tears, sneezing, and cough.

These experiments appear to show that the general effects produced by methylal are essentially the same, whatever mode of introduction be adopted, but that sleep is somewhat more persistent when it is introduced directly into the stomach. The effects on different animals were the same, but the higher the animal ranked in the scale of beings, the more decided was the hypnotic action; thus one-half the dose necessary to cause sleep in a dog or a cat sufficed to induce it in a monkey; guinea-pigs did not actually sleep, but were only drowsy. Lastly, it would seem that the elimination of methylal is very rapid, particularly by the lungs. To sum up, although powerful doses of methylal produced toxic effects, going on even to death, the principal action of this substance in comparatively weak doses is to induce sleep, the doses required being from 25 to 50 centigrammes per kilogramme of the weight of the animal. Methylal therefore is a hypnotic which is rapidly eliminated, leaves no ill effects after awakening, does not accumulate in the system, and has but little toxicity unless taken in large doses.

MM. Mairet and Combemale have also studied the therapeutic action of methylal upon persons affected with mental alienation of different forms; their results are embodied in a note read to the Académie des Sciences on April 24, 1887. The sweet taste and ethereal odor of methylal and its solubility in water render its administration easy; it was given in an ordinary julep. Doses of from 1 to 8 grammes never caused gastric or other disturbance, but it was remarked that those patients who now and then wetted their bed did so regularly while taking methylal. It was always administered by the mouth, and in one dose at bedtime.

The drug was given to fifteen patients suffering from mania and lypemania; to twelve cases of simple dementia consecutive to functional mental alienation; to three cases of delirium tremens; to three cases of dementia; and to seven cases of paralytic dementia. In many of these cases other hypnotics had been tried, so that comparisons could be instituted.

At the outset of simple mania methylal appeared to have no hypnotic action, although the dose was raised to 7 and 8 grammes; at the stage of complete development, during acute crises of violence, methylal in doses of from 5 to 6 grammes succeeded, on the contrary, in procuring during the first days a sound sleep, lasting all night. The sleep, generally continuous, was in some cases interrupted for a quarter to half an hour, but was afterwards resumed until morning. This result was obtained even in cases of extreme violence, but it was necessary to increase the dose. The action diminished slightly when the system became accustomed to the hypnotic, but on interrupting the medication for two or three days, methylal again produced the same results as in the earlier doses. In simple dementia consecutive to functional mental disturbance, the effects of methylal were uniformly favorable, no matter what the degree of agitation of the patient, if the doses were sufficiently high, 5 and even 8 grammes had to be given. In two cases only was there no good result, and in one of these cases the patient was refractory to all hypnotics; the other patient had cardiac disease, and was influenced only by digitaline. It was necessary in these cases also to increase the dose when the system became habituated to the hypnotic. There were three cases of alcoholic mania, in two of which methylal was entirely without

effect, or had but a slight effect. In the cases of dementia the hypnotic in moderate doses (3, 4, to 5 grammes) produced good effects during the first five or six days; afterwards the sleep was less persistent, and lasted only from five to six hours, even when the dose was augmented. Among the seven cases of paralytic dementia, two were refractory, the first took at first 5 grammes, and later on 8 grammes, and slept three hours only, then three, four, and five hours, but continued talking. All other hypnotics had equally failed. The second case was syphilitic. No effects whatever were produced, even by a dose of 7 grammes. The other cases obtained quiet and sleep to a satisfactory degree, no matter what stage of the malady had been reached. In these cases there appeared no signs of the system becoming habituated to the hypnotic, which continued to be given in the same doses (5 to 8 grammes) for eight days running.

To sum up, methylal, without effect in alcoholic mania and at the outset of simple mania, succeeds pretty generally in all other cases, but it is necessary sometimes to augment the dose when the system becomes habituated to it, or to interrupt its administration for two or three days. It is important to note that the action of methylal is purely somniferous. Its impression on the brain is evidently temporary, and it causes no depression. It causes no disturbance of the nervous or nutritive systems. It is certainly destined to render good service in therapeutics.—*Brit. Med. Journ.*, October 22, 1887.

PHOTOXYLIN.

In a previous issue we alluded to the use of photoxylin as a substitute for collodion. Since then we have received a number of queries as to what this substance is, how it is prepared, and where obtainable. The United States shipping laws prohibit the importation of this substance, which is practically gun-cotton, on vessels carrying passengers. Dr. Elmer, of New York, however, publishes in the *American Druggist* for November, 1887, the following formula for its preparation:

Mann, of St. Petersburg, prepared his gun-cotton with sulphuric acid of but moderate strength. He took thirty-one per cent. of sulphuric acid of 1.830 to 1.835 sp. gr., twenty per cent. of nitrate of potash, and immersed the cotton in the mixture when 50° C., digesting it for twenty-four hours at 28° to 31° C. The time of digesting can be extended to five or six days. When the temperature is kept at 50°, one hour will suffice.

A mixture of thirty-three per cent. of sulphuric acid of 1.80 sp. gr. and ten per cent. of nitrate of potash gave also good results.

Chili saltpetre (nitrate of soda) crystallizes easily in the mixture, and will not do on that account.

A NEW PEPTONE FOR SUBCUTANEOUS INJECTION.

Hitherto attempts to use peptone hypodermically had failed on account of the difference of composition which existed between their composition and that of the blood. It occurred, therefore, to M. Reynard (*London Med. Record*, October 15, 1887) to convert blood serum itself into peptone. He recommends the following formula: Pure serum albumen, 5 grammes; dialyzed pepsin, 75 centigrammes; distilled water, 75 grammes; and 19 drops of pure hydrochloric acid; the mixture to be kept at a temperature of 46° C. for three times twenty-four hours. At the end of this time the liquid product is clear, and does not precipitate on the addition of ferrocyanide acidulated with acetic acid. When purified by dialysis and concentrated, it is spread on glass, and evaporated to dryness on a water-bath. This peptone, peptonized by alcohol, is well borne when administered by hypodermic injection, and gives rise to no irritation.

The *Western Pennsylvania Medical College* at Pittsburg began its second annual regular course on Tuesday, September 27, with a class of near one hundred.

The introductory address was delivered by the secretary of the faculty, Prof. W. J. Asdale.

Dr. Asdale congratulated the class that they entered as students of medicine at an auspicious time, that the *science* of medicine was rapidly developing, that grand and great achievements were promised in the near future, that a new pathology was being created on an endurable basis, and a new therapeusis is to be formulated.

This college requires an entrance examination, and provides a three years' graded course.

Its success has been unexampled.

POISONING BY CARBOLIZED COTTON-WOOL.

In a recent clinical lecture at the Hôpital des Enfants Malades, M. SIMON (*London Med. Record*, October 15, 1887) described an interesting case of acute poisoning by carbolized cotton-wool in a female child, aged 22 months, and also gave some useful hints as to the differential diagnosis of aphthous sore mouth, angina, scarlatina, and diphtheria. On February 6, M. Simon was called in consultation to examine a little girl, aged 22 months, who had, the evening before, presented a series of nervous symptoms (prostration, vomitings, cold extremities). The patient had been affected with submaxillary adenitis, and tincture of iodine had been applied. The tincture being very much concentrated, an ulceration of five to six centimetres in length was the result of its application. The family doctor was now called in, and iodoform gauze and carbolized cotton-wool was applied to the ulceration. The first dressing was made on February 3. The next morning the wound presented a much better appearance, but the general state of the patient left much to be desired. The mouth was dry, tears flowed, and there was evident coryza. The child was very excitable, and complained of pains in the head. Temperature, 38.8° C. (101.8° F.). Pulse frequent. On February 5 the child was taken with vomiting, which medication failed to arrest. The face became pale and the extremities cold, while the temperature rose to 39.6° C. (103° F.); prostration was extreme, and the flow of urine suppressed. The use of the carbolized cotton-wool was abandoned, the patient recovering entirely from the toxic symptoms at the end of thirty-six hours. Specimens of the urine passed during the attack, and which were as black as ink, did not give the characteristic blue color when treated with nitric acid and starch, making it evident that the iodine had played no part in the intoxication. According to M. Simon, the elimination of the urine having been arrested at the first moment, the carbolic acid was accumulated in the nervous centres, and afterwards came away, on the suppression of the carbolized dressing, in the black urine characteristic of the poison. Considering the great susceptibility of children to the toxic action of carbolic acid, M. Simon thinks that this medication should never be used in children under two years of age. M. Simon then proceeded to describe the signs by means of which a differential diagnosis may be made between aphthous sore mouth, angina, scarlatina, and diphtheria. The presence of a rough elevated product, the outer edges of which are not sharply cut, like that of a watch-glass set in metal, indicates aphthous sore mouth; whereas in diphtheria the patch is smooth, flat, and depressed, surrounded by a raised mucous membrane forming a distinct outline. In scarlatina the tonsils present patches of thick matter of unequal size, elevated, well defined, and without tendency to spread, being confined to the natural depressions of the organ.

ACACIA DELIBRATA.

A Brisbane plant which DR. BANCROFT has examined is *Acacia delibrata*, in the pods of which he has found a saponin. Physiologically it was found to act as an irritant poison. It has a very disagreeable taste, and is soluble both in alcohol and in water.—*Australian Journal of Pharmacy*, p. 104; *Pharmaceutical Journal and Transactions*, October 1, 1887.

A CORRESPONDENT sends us the following, which will point to the need of some registration law in Missouri:

"The accompanying slip will give your readers, if you see fit to publish it, an idea of the class of men we have to contend with in the practice of medicine in Missouri. It was in the case of an old lady, aged 62, whom the "doctor" had been treating for pneumonia for a week, when they decided to discharge him. The following is a fac-simile of the memorandum he left for his successor, which, unfortunately, happened to be the writer:

Dr

I Prepared fever dro. Ver Verie 10 gt
Aconite 5 "

Syrup for Lungs Tareter 3me
Capicum
Acue
Shugar

for the Pouls — Leptendrin
a smale — Ipca
powder — Capicum
at Night — Rehubarb

oil & turpentine for the Bouls

& a smale dose of oil & turpentine ever 3 hours

P. J. Jack M.D.

"As might be expected, the woman was in a dying condition and passed away within a few hours.

"Such cases serve to show the results of a law that allows such ignoramuses to degrade the profession."